News about

B. F. Goodrich Chemical *raw materials*

Improve and save on your rubber processing with Good-rite Vultrol

*REG. U. S. PAT. OFF.

Vultrol

...PROTECTS AGAINST SCORCHING
...PERMITS UNINTERRUPTED PRODUCTION
...REDUCES "DEAD" STOCKS
...REQUIRES NO SPECIAL HANDLING

Good-rite Vultrol offers you many advantages for rubber processing. It is ideal for preventing scorching not only during the hot weather months—but the year round. It retards scorch at processing temperatures, and also acts as a mild activator at curing temperatures.

Check these additional Vultrol advantages. It is beneficial on heavy-loaded or highly-accelerated compounds, and is particularly effective with high abrasion furnace blacks.

Supplied as a free-flowing flake, Vultrol requires no special handling. It is most effective when added to the latter stages of mixing. Economical and easy to use. Saves time, money and labor! For further information about Good-rite Vultrol, please write Dept. HB-11, B. F. Goodrich Chemical Company, Rose Building, Cleveland 15, Ohio. Cable address: Goodchemco. In Canada: Kitchener, Ontario.

B. F. Goodrich Chemical Company
A Division of The B. F. Goodrich Company

Good-rite *Rubber Chemicals*

GEON polyvinyl materials • HYCAR American rubber • GOOD-RITE chemicals and plasticizers • HARMON organic colors

A great big hug for **Philblack* I**

keeps tire costs low and mileage high!

As tire test data on commercial production of Philblack I accumulates—both on our own test vehicles and by tire manufacturers—we are more than ever convinced that this latest addition to the Philblack family is just what the doctor ordered for super performance of tire treads at moderate cost. And growing acceptance indicates that Philblack I may soon be as popular as Philblack A, Philblack O and Philblack E.

Find out about Philblack I, the new ISAF (Intermediate Super Abrasion Furnace) black that helps you make better products . . . and better profits. It's made to order for premium quality tire treads demanded by today's higher horsepower automobiles. Durability plus . . . at reasonable cost!

For complete information about the entire Philblack family consult our technical representative or write our nearest office.

PHILLIPS CHEMICAL COMPANY

PHILBLACK SALES DIVISION

318 WATER STREET · AKRON 8, OHIO

PHILBLACK EXPORT SALES DIVISION • 80 BROADWAY • NEW YORK 5, N.Y.

Phillips 66

* A Trademark

The Philblacks are manufactured at Borger, Texas. Warehouses in Akron, Boston, Chicago, and Trenton. West Coast agent: Harwick Standard Chemical Company, Los Angeles. Canadian agent: H. L. Blachford, Ltd., Montreal and Toronto.

BLACK PICTURE of product failure is this badly discolored vinyl upholstery trim. You can stop such degradation from the start by using heat- and light-resistant PLIOVIC.

LONGER PRODUCT LIFE

—at lower cost, comes with PLIOVIC

BIG, built-in advantage of PLIOVIC—Goodyear's easy-processing, polyvinyl chloride resin—is its exceptional heat and light stability.

This unusual resistance of PLIOVIC to degradation spells longer life at lower cost for your product. You can use less stabilizer. You can use cheaper stabilizers. You can formulate simpler compounds easier. And you can do this with less danger of product failure.

The added stability of PLIOVIC also permits greater latitude in processing time and temperature, full development of product color and safe re-use of scrap and tailings.

Exceptional stability, ease of processing and excellent physical properties are just some of the reasons for using PLIOVIC in your product. The full story—in the form of a new, technical manual—is yours simply by writing to: Goodyear, Chemical Division, Akron 16, Ohio

We think you'll like "THE GREATEST STORY EVER TOLD" every Sunday—ABC Radio Network
THE GOODYEAR TELEVISION PLAYHOUSE every other Sunday—NBC TV Network

CHEMICAL GOODYEAR DIVISION

Chemigum, Pliobond, Pliolite, Plio-Tuf, Pliovic—T. M.'s The Goodyear Tire & Rubber Company, Akron, Ohio

Use-Proved Products—CHEMIGUM • PLIOBOND • PLIOLITE • PLIO-TUF • PLIOVIC • WING-CHEMICALS—The Finest Chemicals for Industry

DOW CORNING Release Agents give the finish that sells floor tile

It's appearance—not mileage—that sells floor tile!

The rich, deep colors and the delicate tints architects and decorators call for must come clean from the molds with a surface that looks polished and free from any bloom or blemish.

And that's why most of the leading producers of rubber floor tile use Dow Corning silicone release agents. They keep highly polished press plates clean and smooth; improve the flow of heavily loaded stocks. They never break down to form a carbonaceous deposit that roughens the surface or discolors even the lightest tile.

Easily diluted with water, Dow Corning Emulsions cut mold maintenance costs to the vanishing point; reduce scrap by as much as 80%. And that's why Dow Corning silicone mold lubricants are the most widely used release agents in the rubber industry. Use silicone fluids for green carcass, bead and parting line release; the emulsions for all kinds of molds, mandrels and butyl curing bags.

For more sales appeal at lower costs specify DOW CORNING SILICONE RELEASE AGENTS

You can also make profitable use of many other Dow Corning silicone products.

WRITE TODAY **for your free copy of our NEW, 24 page TENTH ANNIVERSARY booklet, TALL TALES and FABULOUS FACTS.**

DOW CORNING CORPORATION, Dept. CM-11, Midland, Michigan

Please send me a free copy of
Tall Tales and Fabulous Facts

NAME _____ TITLE _____

COMPANY _____

ADDRESS _____

CITY _____ ZONE _____ STATE _____

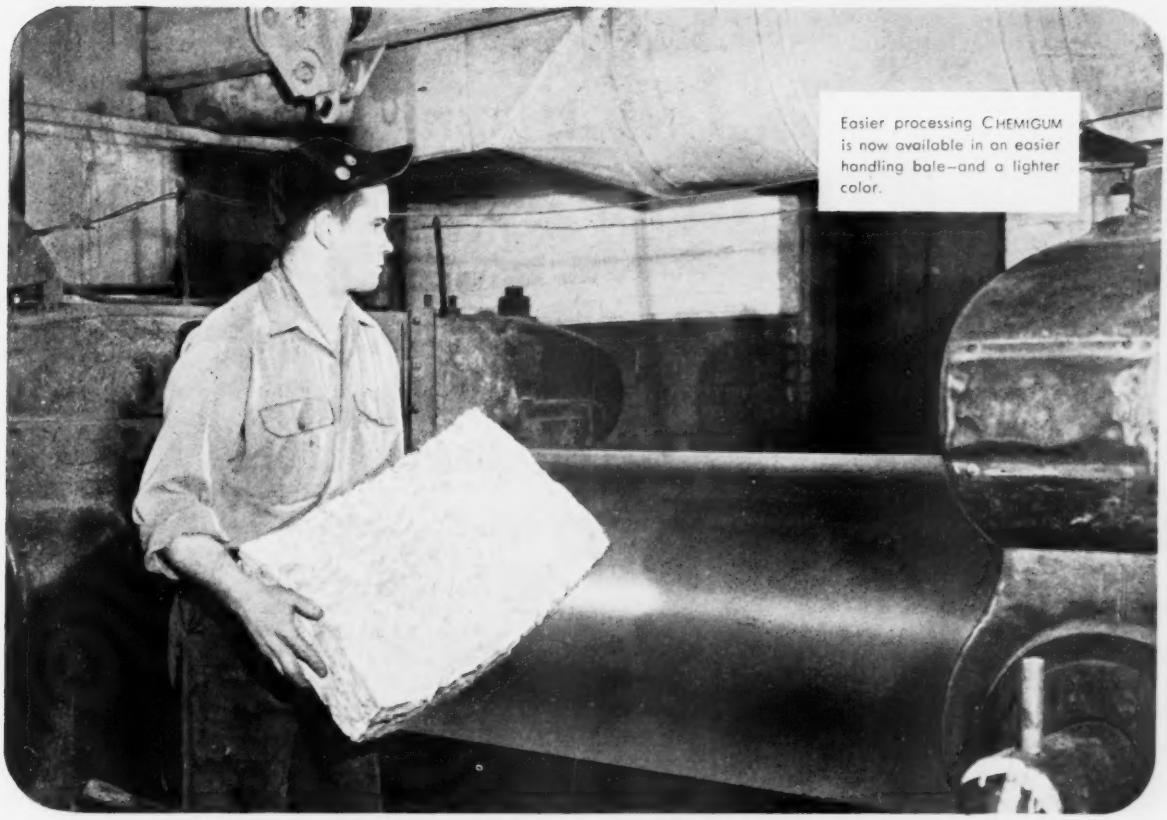
DOW CORNING SILICONES

DOW CORNING CORPORATION

MIDLAND, MICHIGAN

ATLANTA • CHICAGO • CLEVELAND • DALLAS • DETROIT
LOS ANGELES • NEW YORK • WASHINGTON, D. C. (Silver Spring, Md.)

IN CANADA: Fiberglas Canada Ltd., Toronto, Ontario
IN GREAT BRITAIN: Midland Silicones, Ltd., London, W. 1



Easier processing CHEMIGUM is now available in an easier handling bale—and a lighter color.

NOW—LIGHTER COLORED CHEMIGUM

in a lighter weight bale

BASICALLY the same, yet visibly different are two new types of CHEMIGUM—Goodyear's easier processing nitrile rubber.

CHEMIGUM N6 and CHEMIGUM N7 are the same basic polymers as their respective forerunners, CHEMIGUM "30" N4NS and CHEMIGUM "50" N4NS. After-polymerization process changes give you these new, oil-resistant rubbers in a much lighter—almost white—color and in a much lighter—50 pound—bale.

Now, you can add new ease in handling and new possibilities in compounding to the established advantages of use-proved CHEMIGUM. CHEMIGUM is the easiest processing of the nitrile rubbers. You get faster "breakdowns" easier. And you get them with physical, chemical and electrical properties that equal or surpass those of any similar rubbers.

With the new CHEMIGUM, you can meet virtually any specification for oil-resistant compounds easily and profitably. Just try it and see. For details, write: Goodyear, Chemical Division, Dept. I-9419, Akron 16, Ohio.

CHEMICAL GOODYEAR DIVISION

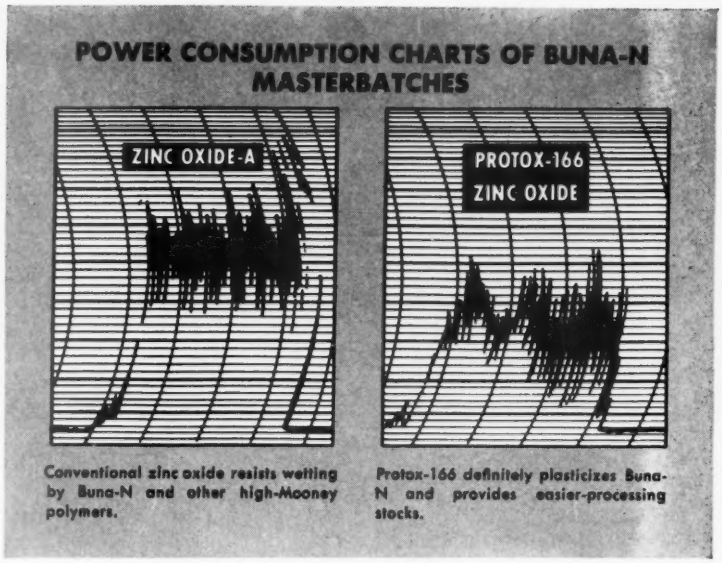
Chemigum, Pliobond, Pliolite, Pliovic—
T. M.'s The Goodyear Tire & Rubber Company, Akron, Ohio

We think you'll like THE GOODYEAR TELEVISION PLAYHOUSE—every other Sunday—NBC TV Network

Use-Proved Products—CHEMIGUM • PLIOBOND • PLIOLITE • PLIOVIC • WING-CHEMICALS—The Finest Chemicals for Industry

Save on Power Costs Cut Mixing Time with . . .

PROTOX* *Zinc Oxides*


POWER CONSUMPTION CHARTS OF BUNA-N MASTERBATCHES
ZINC OXIDE-A
PROTOX-166 ZINC OXIDE
Conventional zinc oxide resists wetting by Buna-N and other high-Mooney polymers.
Protox-166 definitely plasticizes Buna-N and provides easier-processing stocks.

These wattmeter records, made on our laboratory Banbury, show how Protox oxides cut power costs of zinc masterbatching and shorten mixing time as compared with conventional oxides:

1. Protox oxides eliminate Banbury power peaks. Rubber's affinity for the coated Protox surfaces does away with power surges—thus cutting penalty payments for electricity beyond the contract demand limit.

2. Protox oxides use less power per batch. Their patented coating of zinc propionate plasticizes the rubber . . . makes mixing easier.

3. Protox oxides shorten mixing time. They have fewer aggregates . . . the latter are dispersed by our exclusive process——treatment with propionic acid.

These are only a few of the ways you save processing dollars with Protox oxides. It will pay you to take in a trial order now and count up all the advantages of Protox under your particular conditions.

*U. S. Patents 2, 303, 329 and 2, 303, 330

THE NEW JERSEY ZINC COMPANY

Producers of Horse Head Zinc Pigments

. . . most used by rubber manufacturers since 1852

160 Front Street, New York 38, N. Y.

HORSE HEAD PRODUCTS

RUBBER FABRICATORS NEED ACCURATE CUTTING DIES

For Cutting

Rubber, Neoprene, Plastics, etc.
Sheeting, Foam, Sponge, Cellular,
Cured & Uncured

Gang Dies Our Specialty

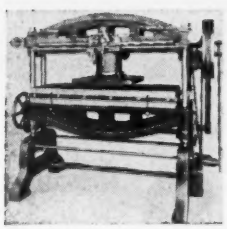
- **Accuracy to close Tolerances**
- **Durability**
- **Genuine Understanding of the problems of rubber goods manufacturers**

MALLET HANDLE DIES

PURPOSE — For those who have no machinery and do not wish to purchase any. For Cutting — Rubber, Neoprene, Plastics, etc.

ADVANTAGE — Cut direct from bolts or not.

SERVICE—One to three days.



STEEL RULE CLICKER DIES

Use On Clicker Machine or Dinker Press

PURPOSE—For Cutting Rubber, Neoprene, Plastics, etc.

ADVANTAGE — More reasonably priced than the all steel dies. Recommended for small and medium quantities where cost of an all steel die is not warranted.

SERVICE—One day service.

Dies for cutting
Gaskets, flashing from molded parts, rubber soles, foam and sponge for furniture padding, inflated toys, clothing and footwear, etc.

STEEL RULE CUTTING DIES

Used on Die Cutting Press, Printing Press or Power Press

PURPOSE — Especially suited for cutting — Rubber, Neoprene, Plastics, etc.

ADVANTAGE—Low in cost. Suitable for long production runs. It is necessary to cut from rectangular sheets which are fed into the press.

SERVICE—One day service.

ALL STEEL DIES

Use On Clicker Machine or Beam Press or Power Press

PURPOSE—For Cutting—Rubber, Neoprene, Plastics, etc.

ADVANTAGE — Cut direct from rolls without first cutting into sheets.

SERVICE—One to three day service on dies.

DIE CUTTING SERVICE

PURPOSE—For those who prefer to have their cutting done by others.

ADVANTAGE—We can die cut your product for you on our own presses rapidly and economically at a low "per thousand" cost.

SERVICE—One to three days.

SAME DAY SERVICE

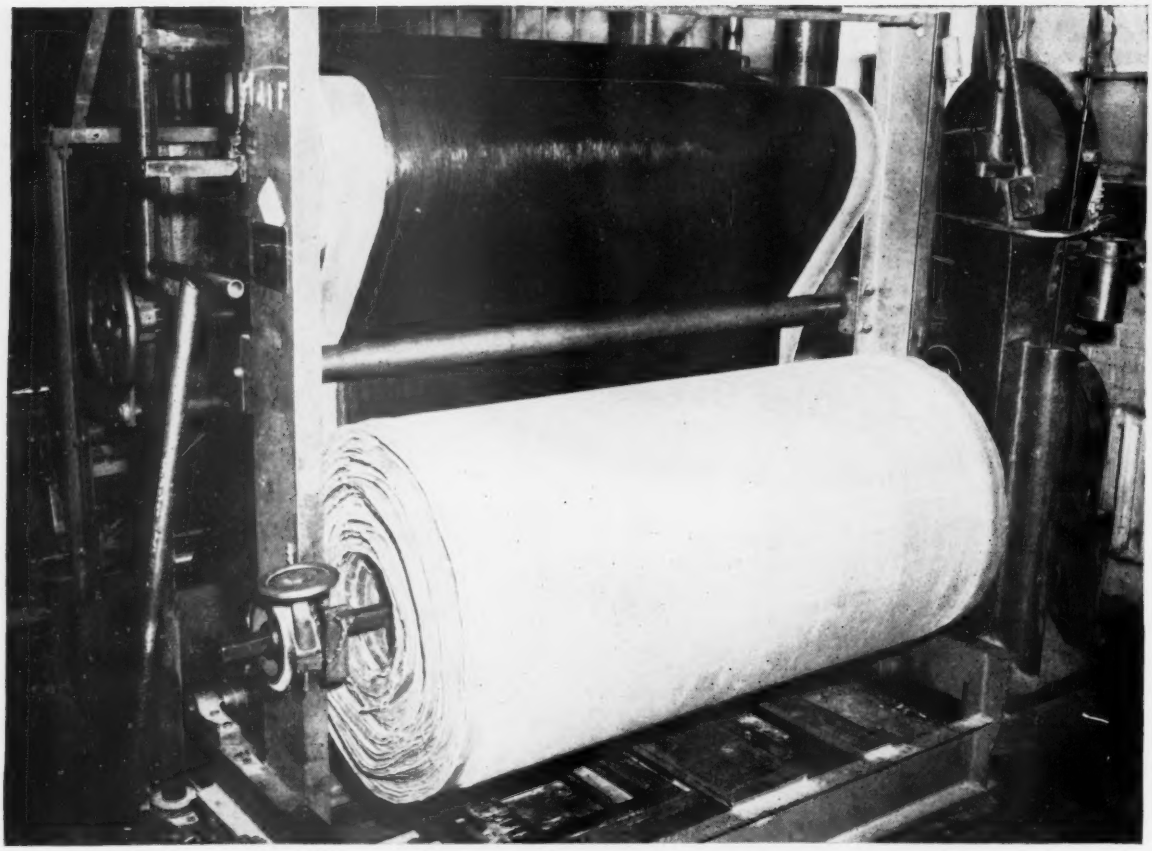
ACCURATE

STEEL RULE DIE MANUFACTURERS

24-28 West 21st Street, New York 10, N. Y. CHelsea 2-0860-1

Subsidiaries: American Fabricators; Interstate Die Cutting Co., Inc.

Intelligent Service to the Rubber Goods Industry for Over 22 Years



CLIMCO PROCESSED LINERS

Eliminate Adhesions at the Bias Cutter

If your stock has been stored in a Climco Processed Liner, you can depend on easier, faster production, and the stock always separates from the liner cleanly, easily.

And Climco Processed Liners preserve the tackiness of the stock; exclude mould, bloom and sunlight. Rejects and losses due to gauge distortion are sharply reduced.

To speed production and to lengthen liner life, Climco Processing has been accepted in the rubber industry for 31 years. For superior liners, try Climco Processed Liners.

THE CLEVELAND LINER & MFG. CO.
5508 Maurice Ave. • Cleveland 27, Ohio

GET THE FULL STORY ON CLIMCO PROCESSING

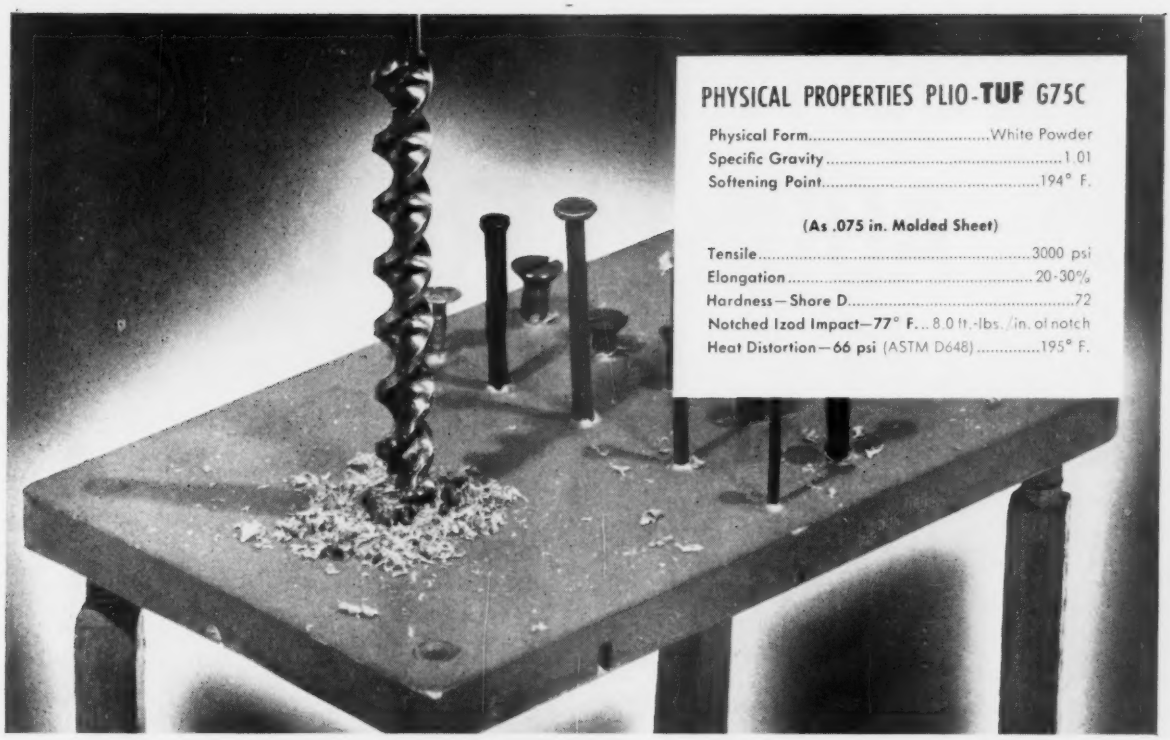
Illustrated booklet tells about Climco Liners and Linerette separating paper. Tells how to get better service from liners. Write for your copy now.

LINERETTE INTERLEAVING PAPER
Treatment Contains
NO OIL OR WAX
Samples on Request

CLIMCO
PROCESSED LINERS

FOR FASTER, BETTER PRODUCTION AT LOWER COST

THE CLEVELAND LINER & MFG. CO. CLIMCO CLEVELAND, OHIO, U.S.A.



PHYSICAL PROPERTIES PLIO-TUF G75C

Physical Form	White Powder
Specific Gravity	1.01
Softening Point	194° F.

(As .075 in. Molded Sheet)

Tensile	3000 psi
Elongation	20-30%
Hardness—Shore D	72
Notched Izod Impact—77° F.	8.0 ft.-lbs./in. of notch
Heat Distortion—66 psi (ASTM D648)	195° F.

ALL THIS-

Plus High Heat Resistance with Plio-Tuf

HIGH styrene copolymers with unusually high heat resistance and exceptional impact strength are the new and different PLIO-TUF G75C and PLIO-TUF G85C.

These are pure resins—not blends with rubber. They need not be cured to give optimum properties. They are easily compounded. They are easily processed. Conventional equipment can be used to calender, extrude or mold them. Polished or embossed sheets are easily post-formed by vacuum or mechanical drawing.

PLIO-TUF G75C is designed for use alone. PLIO-TUF G85C is made for use with G75C or various rubbers to increase hardness, tensile or heat softening points.

Products made with the PLIO-TUF resins are hard, tough, light, strong and chemically and electrically resistant. They can be sawed, drilled, punched, tapped, turned, sewed—worked like wood or metal. Typical uses include carrying cases, chemical containers, pipe or tubing, automotive and equipment parts, toys, protective helmets and many other molded, post-formed or fabricated items.

JUST FILL THIS OUT FOR FULL INFORMATION AND SAMPLE!

The Goodyear Tire & Rubber Company, Inc.
Chemical Division, Dept. K-9419, Akron 16, Ohio

Please send me full details and sample of the new PLIO-TUF.

☐ I am a fabricator interested in PLIO-TUF sheets.
☐ I am a processor interested in PLIO-TUF resins.

Name_____

Company_____ Position_____

Address_____

CHEMICAL GOODYEAR DIVISION

Chemigum, Pliobond, Pliolite, Plio-Tuf, Pliovic—T. M.'s
The Goodyear Tire & Rubber Company, Akron, Ohio

We think you'll like "THE GREATEST STORY EVER TOLD"—every Sunday—ABC Radio Network—THE GOODYEAR TELEVISION PLAYHOUSE—every other Sunday—NBC TV Network

Use-Proved Products—CHEMIGUM • PLIOBOND • PLIOLITE • PLIO-TUF • PLIOVIC • WING-CHEMICALS—The Finest Chemicals for Industry

WHAT'S ALL THE TALK ABOUT TIRE CORD?

THE invisible 40%... you don't see it—few people know exactly what it is... but the cord actually accounts for 40% of the weight of a tire. More than that, it forms the carcass, the sinews. On it depends to a great extent the life span of your tire.

This is why cord performance is so important to the buyer of tires. Over the years, rayon cord has proven its strength advantages in helping to create tires that will run cooler, have fewer blow-outs, fewer carcass failures... and *at the lowest cost.*

Nine out of ten of the country's trucks and busses are rolling on rayon. What better proof that rayon does the job?

Enka is a major producer of Rayon for tires

ENKA RAYON FOR CORD IN TIRES

American Enka Corporation, 206 Madison Avenue, New York 16, N. Y.

For better age-resistance in natural and synthetic rubber

WITCO SUNOLITE® WAX

SUNOLITE WAX is made in WITCO's Chicago plant.

- ★ Lighter in color than other anti-sunchecking waxes. No adverse effect on white or pastel stocks.
- ★ Equal or superior to other waxes as an inhibitor of static atmospheric and corona cracking. Tests show 3 to 5 parts Sunolite per 100 parts GR-S 100% effective after 18 months' exposure!
- ★ Useful as frosting preventive . . . imparts good flex cracking resistance.
- ★ Melts and disperses readily at mixing temperatures.

Comparison tests show SUNOLITE outstanding for tire sidewalls, wire jacket and insulation, mechanicals, footwear, garden hose, automotive specialties and sundry goods.

Write today for WITCO TECHNICAL SERVICE REPORT R-7 . . . gives comparison test results and technical data.

WITCO CHEMICAL COMPANY

260 Madison Avenue, New York 16, N. Y.

Los Angeles • Boston • Chicago • Houston • Cleveland • Akron
San Francisco • Amarillo • London and Manchester, England

When Contact Counts

You Can Always Count on Marbon's Dependable

TY·PLY "Q" and "3640"

Enjoy Top Notch Adhesion of GR-S and Natural Rubber Wire Insulation NOW!

Here's a fast economical method of obtaining controlled adhesion of GR-S and natural rubber wire insulation to such surfaces as copper, tin, lead and amaloy. TY-PLY "Q" or "3640" eliminates the necessity of brass-flash and provides non-slipping, fast stripping intimate contact of the wire with the insulaton.

TY-PLY (S) for bonding Neoprene

TY-PLY (BN) for bonding N-types

TY-PLY will adhere most vulcanizable rubber compounds to almost any clean metal surface

MARBON CORP.

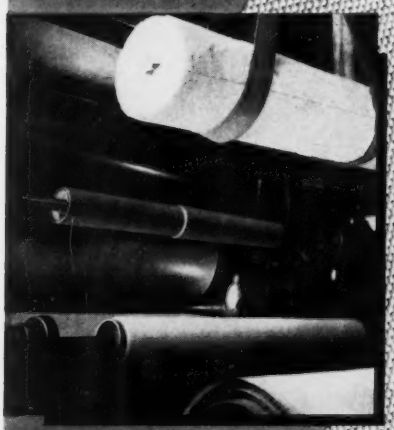
GARY, INDIANA

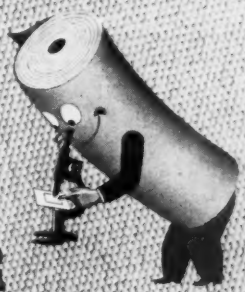
SUBSIDIARY OF BORG-WARNER

TY-PLY has stood the test of time . . . since '39

UNIFORMITY Makes The Big Difference In INDUSTRIAL FABRICS

MT. VERNON FABRICS GIVE YOU GREATER UNIFORMITY





Checking evenness of sliver with linear regularity tester. One of a series of laboratory controls throughout production to assure fabric uniformity in all Mt. Vernon-Woodberry products.

FABRICS ENGINEERED TO FIT YOUR NEEDS

Need adaptation of an existing fabric to your special purposes? Or creation of an entirely NEW fabric — cotton, synthetic or blend — to meet your specifications? Mt. Vernon-Woodberry's staff of textile engineers is available on request to help you with your problems in development or application of industrial fabrics.

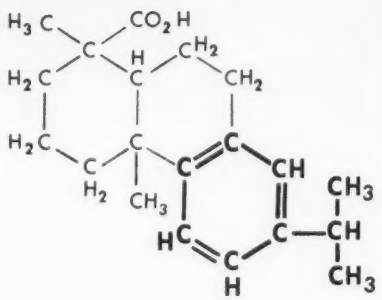
Mt. Vernon - Woodberry Mills

TURNER HALSEY COMPANY
Selling Agents
40 WORTH ST · NEW YORK

Branch Offices: Chicago • Atlanta
Baltimore • Boston • Los Angeles

GALEX®

A superior tackifier and plasticizer for GR-S, NEOPRENE, NATURAL RUBBER and RECLAIM



FORMULA

"Galex" is a stable rosin acid that effectively tackifies and plasticizes GR-S, Neoprene, natural rubber and reclaim. Because of its chemical structure, principally dehydroabietic acid, "Galex" is unaffected by oxidative aging. It is compatible with various elastomers, resins and solvents.

"Galex" is widely used as a tackifier-plasticizer in hose, belting, mechanical goods and various friction stocks. It imparts strong surface tack which develops into excellent adhesion after cure. "Galex" also functions as a highly stable and compatible tackifier in rubber-base adhesives and cements.

"Galex" may be the tackifier-plasticizer you need to build maximum quality into *your* compound. Its superior tack, excellent aging resistance and high compatibility warrant your investigation. Write for technical information and samples.

Thiokol® Chemical Corporation

784 NORTH CLINTON AVENUE • TRENTON 7, NEW JERSEY

In Canada: Naugatuck Chemicals Division, Dominion Rubber Company, Elmira, Ontario

uniformity
precision
dependability

specify

UNITED Rolls

for processing

rubber

plastics paint

tile linoleum

and other non-metallic materials

Roll making has been an important part of our business for 50 years.

Through research and development in roll design and manufacture, we have made important contributions to greater uniformity and accuracy in the product of rubber and other non-metallic processing machinery.

Our engineers specialize in the design of rolls for new or unusual requirements as well as for standard applications. Why not consult them on your next roll requirement?

UNITED ENGINEERING AND FOUNDRY COMPANY

PITTSBURGH, PENNSYLVANIA

Plants at Pittsburgh • Vandergrift • New Castle, Youngstown • Canton

Subsidiaries: Adamson United Company, Akron, Ohio; Lobdell United Company, Wilmington, Delaware; Stedman Foundry and Machine Company, Inc., Aurora, Indiana

Designers and Builders of Ferrous and Non-Ferrous Rolling Mills, Mill Rolls, Auxiliary Mill and Processing Equipment, Presses and other heavy machinery. Manufacturers of Iron, Nodular Iron and Steel Castings and Weldments.

IOI ENGINEERING VERSATILITY

SPLICE PRESSES

...for high tension processing lines

Thermoplastic presses develop splicing pressures up to 1,000 lbs. per sq. in. on the platens, with temperatures up to 600° F.

The higher tensions now in general use on tire cord lines have made it extremely difficult to hold satisfactory splices on materials being processed. IOI has overcome this rubber industry problem by developing thermoplastic splice presses capable of producing splicing pressures up to 1,000 lbs. per square inch on the platens.

IOI builds two standard sizes of splice presses, one for platen pressures up to 300 lbs. per square inch, the other for pressures up to 1,000 lbs. per square inch. Platens are 4" wide by either 72" or 78" long and are ground to precision tolerances to provide uniform clamping pressures. Both upper and lower platens are heated. Steam is used for temperatures up to 350°F., electricity for temperatures up to 600°F. The ability of these presses to hold extremely close temperature uniformity has been proved—some units showing under tests only a 1°F. variation over the entire face of the platens.

The units employ hydraulic pressure systems and are furnished with or without the hydraulic pumps. When furnished with the hydraulic system, units are shipped complete, ready for immediate installation.

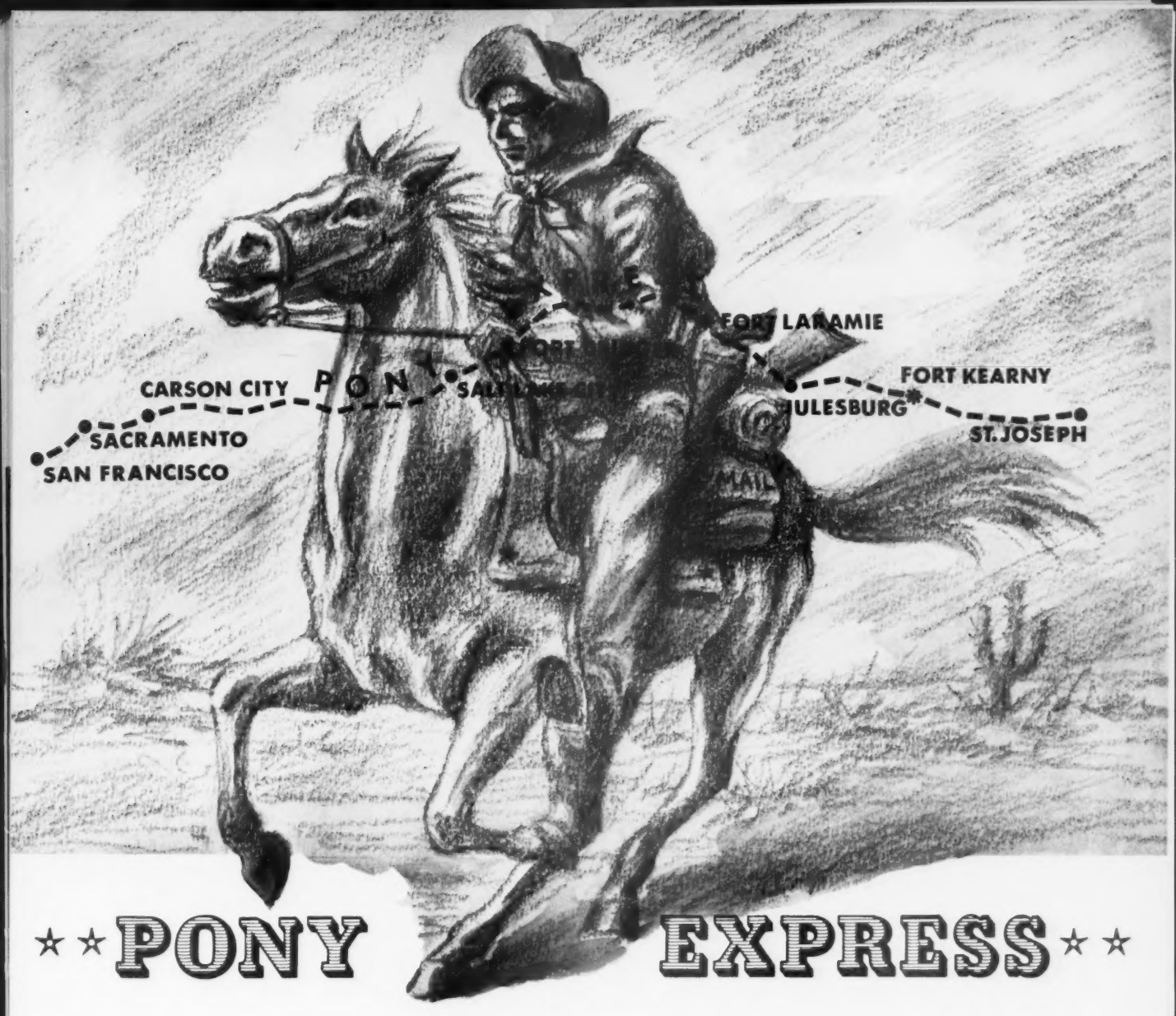
IOI splice presses are compact in design and ruggedly constructed to withstand the stresses produced by the extremely high hydraulic pressures. They are equipped with safety devices to safeguard the operator. High operation speed is assured by an automatic splicing cycle.

Space requirements for these presses are extremely small, permitting convenient placement in most existing floor plans.

Write for detailed specifications and prices.

INDUSTRIAL IOI ENGINEERING VERSATILITY **OVENS, INC.**

13825 TRISKETT ROAD CLEVELAND 11, OHIO

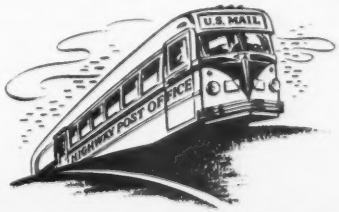


★★PONY EXPRESS★★

No attempt in America's history to bring about swifter communication was more daring, more romantic than the Pony Express. Though it was destined to be short-lived, the memory of it still excites the imagination of youth and oldsters alike.

The trail extended from St. Joseph, Missouri, to the Pacific. Riders rode in "stages" of from 10 to 15 miles per horse. Neither hot plains, steep mountains, fearful storms nor Indians deterred these swift couriers from their appointed rounds. The fastest trip made between the two points was seven days and 17 hours, when Lincoln's first inaugural address was taken to the west coast. Sixteen months after its start the Pony Express had vanished into history, telegraph service having been completed from coast to coast.

Countless are the uses of motor trucks in the postal service today, within communities, on "Star" routes, and, of fairly recent development, the highway post office. With the help of the rubber tire, written and printed communication between people is transported by "The swift couriers in their appointed rounds." No locality, no roadside mail box is too remote.



Just as "shoeing" gave the pony support, today's tires are "shod" with carbon black, giving durability and strength. United Black are made to maintain the high standard of rubber manufacturers' tires. Wherever such tires are used they, too, take swift couriers on their appointed rounds.

UNITED CARBON COMPANY, INC.

Kosmos 70, United's most recent oil base black, is a marvel of strength and stamina for wear and flex resistance among the Superior Abrasion Furnace (SAF) type blacks. But even more, Kosmos 70 is a safe processing black readily adaptable to synthetic and natural rubber.

Put your faith in United blacks. They will keep your tires rolling.

UNITED CARBON COMPANY, INC.

CHARLESTON 27, WEST VIRGINIA

NEW YORK AKRON CHICAGO BOSTON MEMPHIS

CANADA: CANADIAN INDUSTRIES, LTD.

KNIT your profits

—at high speeds . . .

. . . with Fidelity's method of HOSE reinforcement

You can knit natural and synthetic yarns at speeds up to 1,000 feet per hour on rubber and plastic extrusions in continuous lengths. Hose is strong and *flexible*, adhesion is better, diameters are uniform.

By eliminating costly rewinding, treating and drying operations, electrically controlled Fidelity Hose Reinforcement Machines are setting new economy records in plants where they replace conventional braiders. These machines have been time tested by the world's leading Rubber Hose Manufacturers for nearly 20 years.

Write today for Catalog HR describing advantages and technical details. When in the Philadelphia area, visit the new showroom at our plant and see the Fidelity Hose Reinforcement Machine in operation.

Designers and Builders of Intricate, Automatic Precision Machines

SINCE 1911

FIDELITY MACHINE COMPANY, INC.

3908 - 18 FRANKFORD AVENUE, PHILADELPHIA 24, PA.

Export Dept.:
25 Beaver Street, New York 4, N. Y.

Canadian Representative:
W. J. Westaway Co., Ltd., Hamilton, Ontario, Canada.

TRIM FLASHING in a Flash and Clean as a Whistle!

Western's RMH Machine

cuts the cost of trimming as much as **75%**

a factory in a foot of space!

FEATURES: Cuts on replaceable hardened steel plate. Foot control speeds operation. Simple, positive pressure adjustment. ½ H.P. motor Cutting area approx. 8½" x 9".

CUTS, PUNCHES and TRIMS in one swift operation!

DIES ARE OUR SPECIALTY

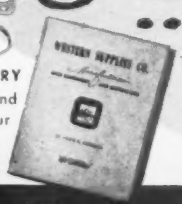
2 and 3 level dies are made for RMH. Change dies in just a few seconds with positive alignment.

FLASHING TRIM DIES
CLICKER DIES
WALKER DIES
I. D. and O. D. DIES
MALLET DIES
MACHINE DIES

POSITIVE SAFETY FEATURES

Machine *cannot* trip accidentally. Operator can view entire operation.

GET THE FULL STORY on Western Machines and Dies by sending for our free illustrated catalog today.



SEND SAMPLES of parts to be cut and flash trimmed for our recommendations.

For Versatility— "GO WESTERN"

Western SUPPLIES CO.

2920 CASS AVE., ST. LOUIS 6, MO.

The finest name
in Rutile Titanium Dioxide

Glidden ZOPAQUE*-R

...gives you
a whiter white...and
it's easier to grind

Glidden research has achieved greater whiteness and a highly accelerated dispersion rate in new Glidden ZOPAQUE-R. These new developments combine to produce pigments with exceptional hiding power, outstanding gloss and color retention and low reactivity.

Write today for more details on new Glidden ZOPAQUE-R, the finest name in Rutile Titanium Dioxide.

ZOPAQUE-R33—For latex paints
ZOPAQUE-R66—All-purpose Rutile
ZOPAQUE-R88—Non-chalking Rutile

THE GLIDDEN COMPANY
CHEMICALS • PIGMENTS
METALS DIVISION
Baltimore, Md. • Collinsville, Ill. • Hammond, Ind.
Oakland, Calif.

*Trade Mark Reg. U. S. Pat. Off.

Another achievement of Glidden Planned Research

QUALITY Glidden PRODUCTS

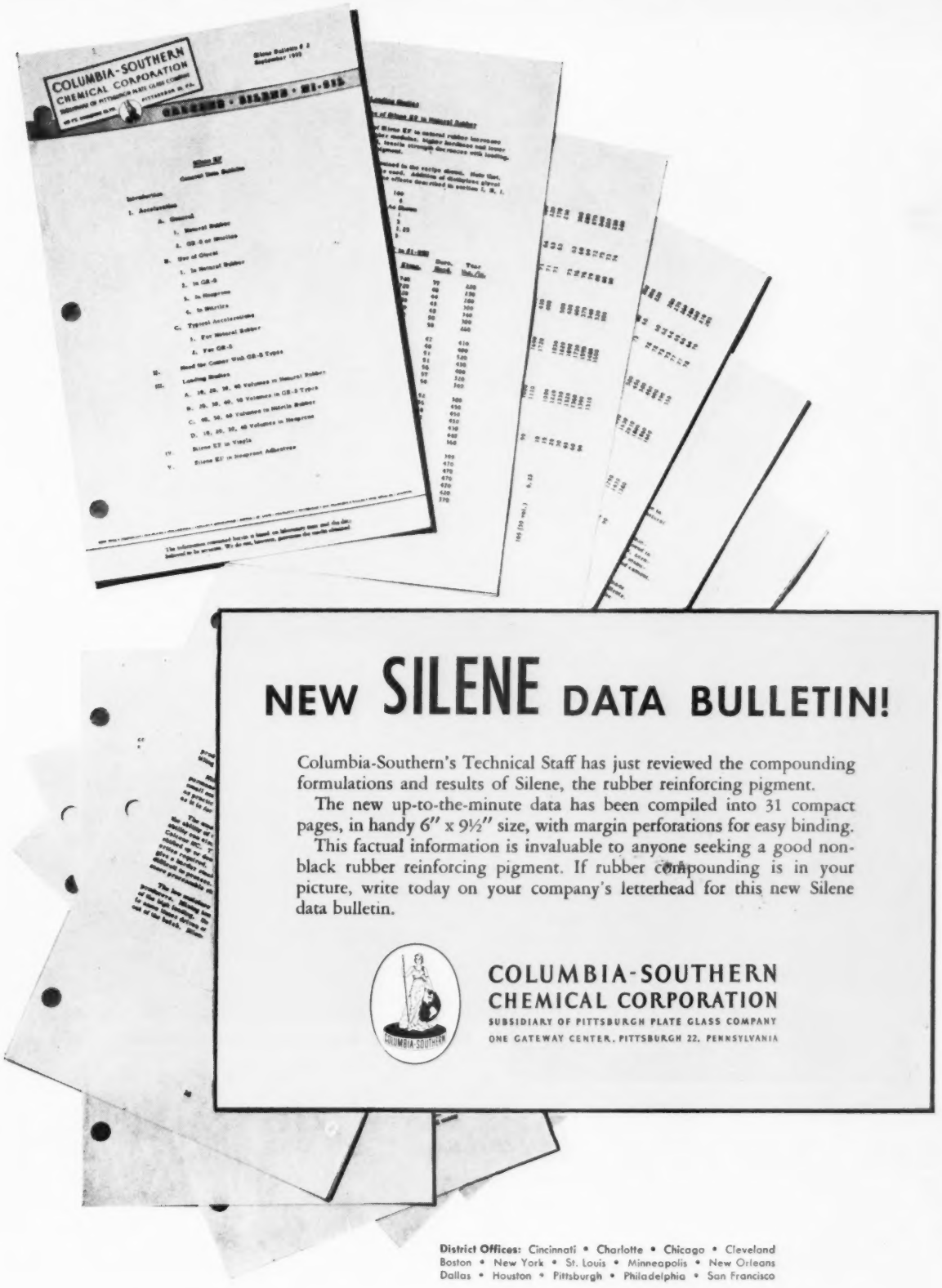
THE FLAME AND THE FLASK

SYMBOL OF QUALITY

Trademark of

THE C. P. HALL COMPANY

THE FLAME AND THE FLASK — symbol of the C. P. Hall Co., a trademark that means precision quality in compounding materials for the rubber industry. You can count on our 34 years of experience and skill to meet the exacting standards of modern production. Contact any of our technically trained representatives for information about products that perform.

AKRON, OHIO • LOS ANGELES, CALIF. • CHICAGO, ILLINOIS • NEWARK, NEW JERSEY

NEW SILENE DATA BULLETIN!

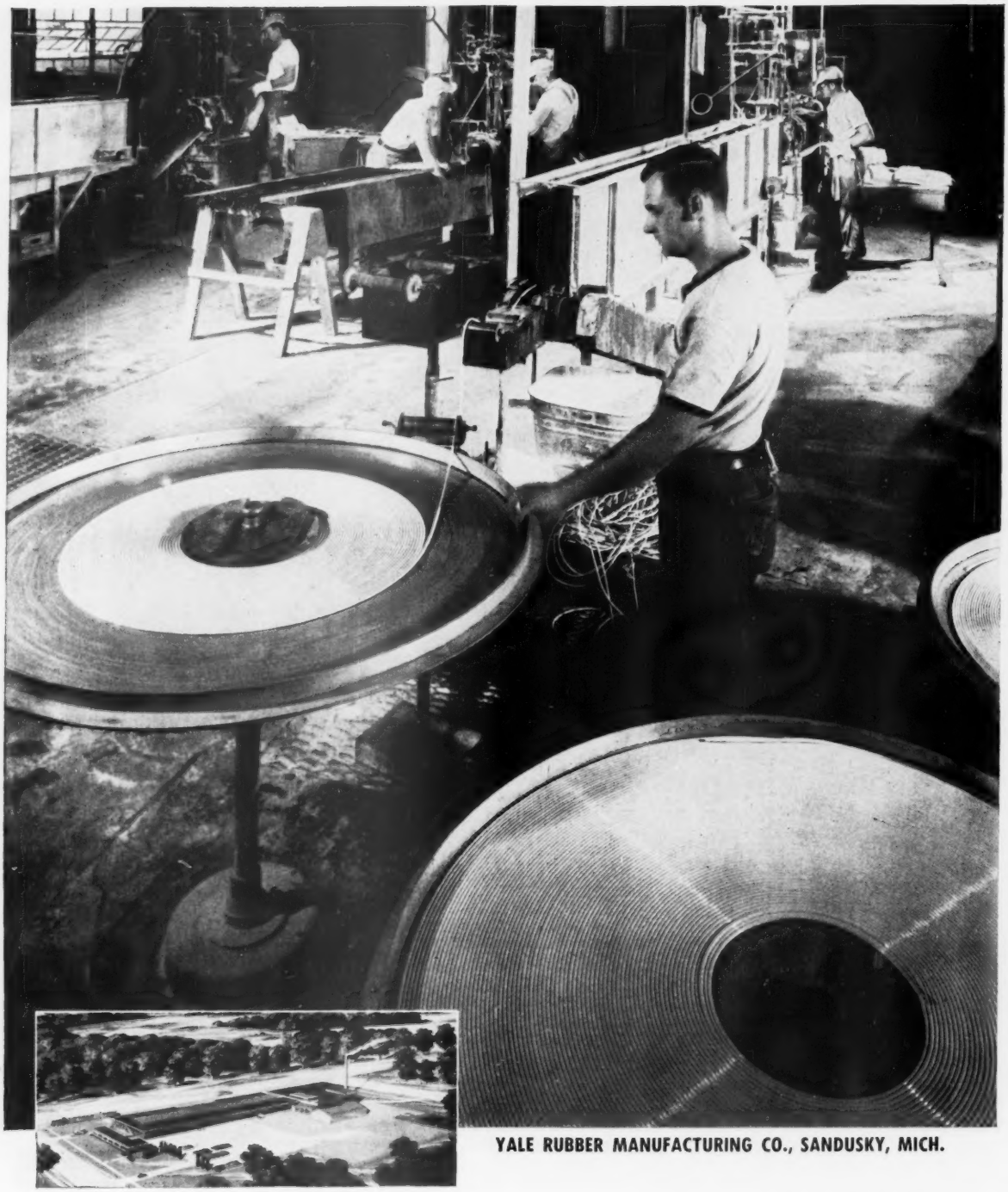
Columbia-Southern's Technical Staff has just reviewed the compounding formulations and results of Silene, the rubber reinforcing pigment.

The new up-to-the-minute data has been compiled into 31 compact pages, in handy 6" x 9½" size, with margin perforations for easy binding.

This factual information is invaluable to anyone seeking a good non-black rubber reinforcing pigment. If rubber compounding is in your picture, write today on your company's letterhead for this new Silene data bulletin.

COLUMBIA-SOUTHERN
CHEMICAL CORPORATION
SUBSIDIARY OF PITTSBURGH PLATE GLASS COMPANY
ONE GATEWAY CENTER, PITTSBURGH 22, PENNSYLVANIA

District Offices: Cincinnati • Charlotte • Chicago • Cleveland
Boston • New York • St. Louis • Minneapolis • New Orleans
Dallas • Houston • Pittsburgh • Philadelphia • San Francisco



YALE RUBBER MANUFACTURING CO., SANDUSKY, MICH.

SEE WHAT *They* SAY ABOUT *Giffels & Vallet*

GIFFELS & VALLET, INC.

INDUSTRIAL ENGINEERING DIVISION

1000 Marquette Bldg. • Detroit 26, Michigan

INDOIL®
CHEMICAL PRODUCTS

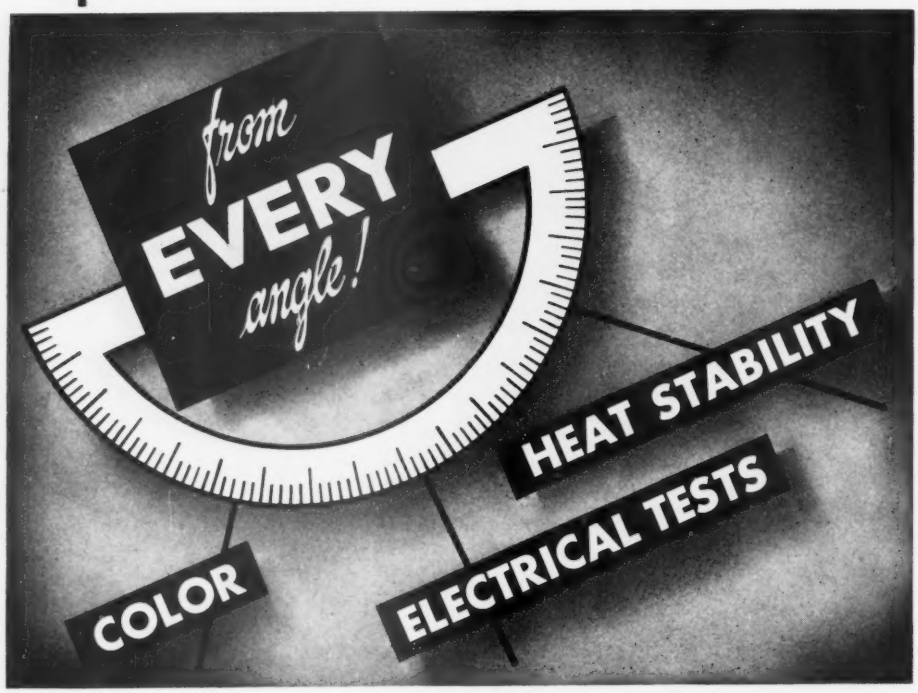
★ NOVEMBER ★
NEWS BULLETIN

for
NON-STAINING
AUTOMOTIVE COMPOUNDS
INDONEX PLASTICIZERS
REG. U.S. PAT. OFF.

For general formulation of Automotive Compounds with INDONEX from Natural Rubber and GR-S, see Circulars 15-29-37; from Butyl, see Circulars 30-39-45; from Neoprene, see Circulars 41-44-47. For non-staining applications some of the described compounds should be modified by use of non-staining antioxidants or accelerators in place of those shown.

Send for:
Circulars listed above
and General Bulletin 13.

INDOIL CHEMICAL CO.
910 SOUTH MICHIGAN AVENUE
CHICAGO 80, ILLINOIS



PIGMENT NO. 33

for Compounding

VINYLS AND SYNTHETIC RUBBER

Sample and technical data sent promptly on request

SOUTHERN CLAYS, Inc.

33 RECTOR STREET
NEW YORK 6, N. Y.

YOU'LL find it easier to unlock the door to better plasticizer performance when you buy from a single, *basic* plasticizer source.

So call on Pittsburgh PX Plasticizers *first!* From coal to final processing in the company's new and modern plasticizer plant, Pittsburgh PX Plasticizers are quality controlled at every step of production . . . to assure you a product of optimum purity and stability.

And to help you select and apply the right Pittsburgh PX Plasticizers to your production, the assistance of a Pittsburgh Sales Service Representative, *who sells nothing but plasticizers,* is immediately available.

For wide choice, for uniform quality, for prompt, dependable deliveries and for experienced sales service . . . call for Pittsburgh PX Plasticizers.

Do you have your copy of this VALUABLE BOOK?

Contains useful data on the plastics industry, the role of plasticizers in the industry, and descriptions and recommended applications of Pittsburgh PX Plasticizers. Write for your free copy today!

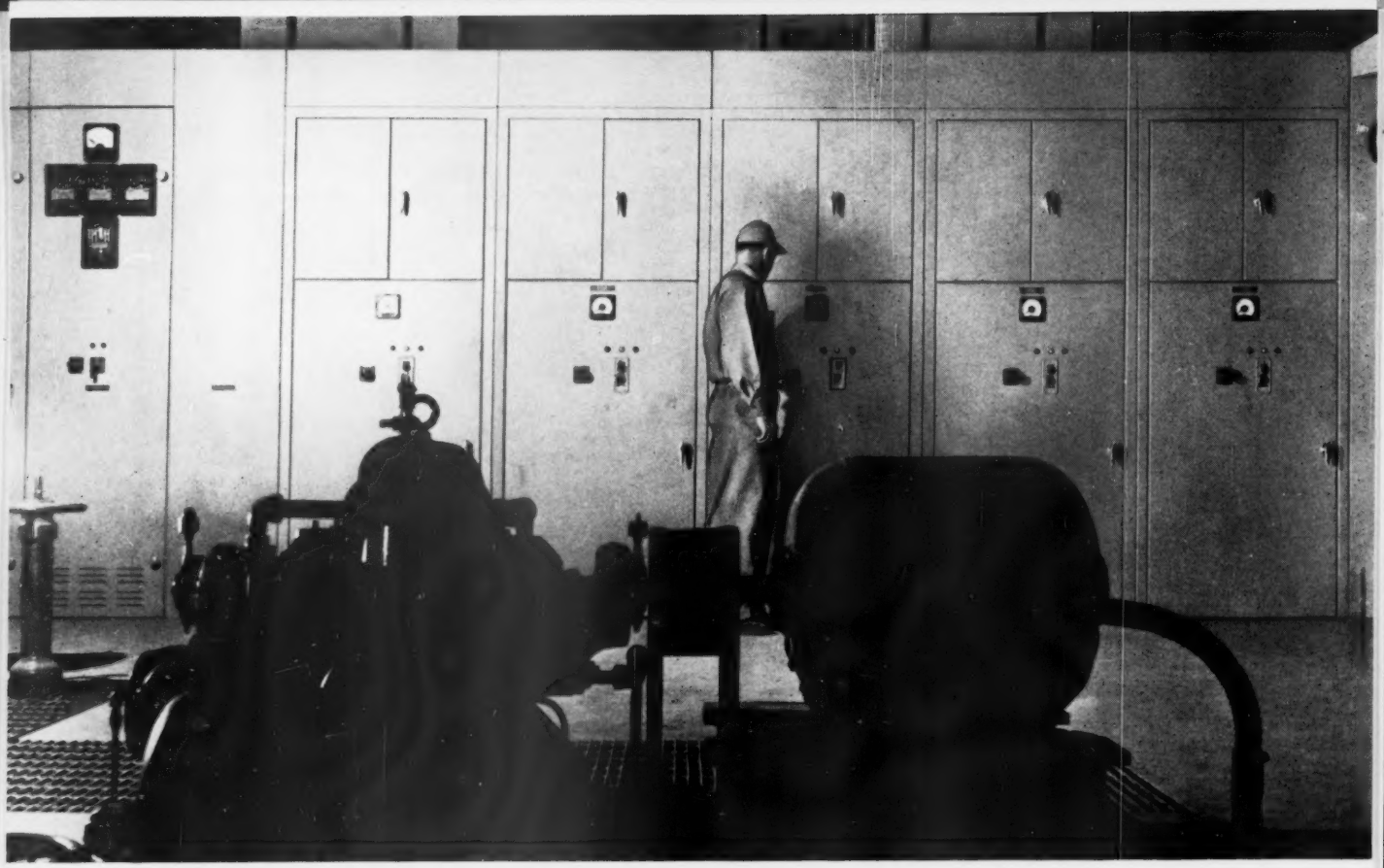
W&D 4686

PLASTICIZER DIVISION

PITTSBURGH
COKE & CHEMICAL CO.

Grant Building . Pittsburgh 19, Pa.

COAL CHEMICALS • AGRICULTURAL CHEMICALS • FINE CHEMICALS • PROTECTIVE COATINGS • PLASTICIZERS • ACTIVATED CARBON • COKE • CEMENT • PIG IRON



G-E LIMITAMP CONTROL stands ready to check short-circuit conditions from high-voltage overloads on synchronous and induction motors up to 4800 volts. Limitamp's high interrupting capacity prevents equipment damage and costly shutdowns.

G-E Limitamp Control means "safety first" for personnel and high-voltage equipment

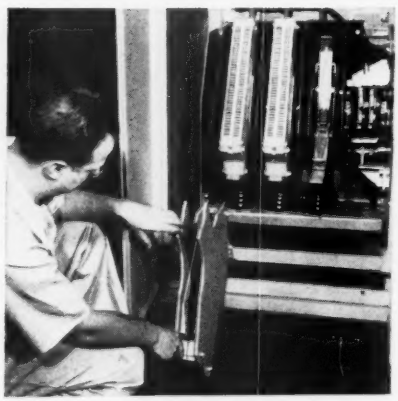
PROTECT YOUR EQUIPMENT from the explosive and shattering effects of sudden electrical overloads with General Electric Limitamp control . . . and be assured of equipment protection against short-circuit conditions up to 250,000 kva.

With General Electric Type EJ-2 fuses, fault current is limited in less than $\frac{1}{4}$ cycle . . . and the air-break contactor offers rugged service for millions of operations.

SAFEGUARD YOUR PERSONNEL by taking advantage of G-E Limitamp's "safety first" features. High- and low-voltage compartments are separated by a steel barrier. A mechanical door interlock assures opening of the motor circuit before the fuse compartment can be opened.

FOR YOUR OWN REQUIREMENTS, individual components need not be specified. Our application engineers select the correct components to give you proper control and sufficient interrupting capacity.

FOR COMPLETE INFORMATION about G-E Limitamp controls and how your particular operation can benefit, contact your nearby General Electric Apparatus Sales Office, or write Section 781-6 for Bulletin GEA-5409 today. ***General Electric Company, Schenectady 5, New York.***



EASY TO MAINTAIN. Arc shutes are easily removed, contact tips quickly inspected, and G-E Limitamp is back on the job.

You can put your confidence in—

GENERAL ELECTRIC

NEVILLE – the Name to Remember in RUBBER PROCESSING Resins and Oils

WHITE WALL TIRE STOCKS

TIRES & TUBES

RUBBER MATS

MECHANICAL GOODS

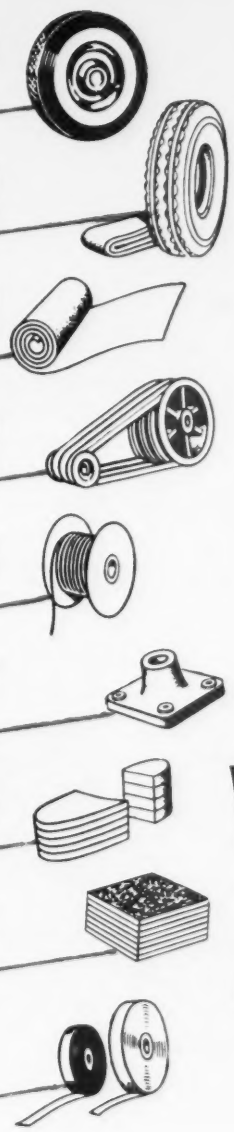
WIRE INSULATION

MOLDED PRODUCTS

RUBBER SOLES & HEELS

RUBBER FLOOR TILE

ADHESIVE TAPE



R 51

You will find Neville Coumarone Resins ideal extender-plasticizers, which will not tend to lower hardness, tensile, modulus or tear. They are available in various grades of melting points and colors.

Neville Resins and Oils are products of years of experience in meeting rubber processing problems. They save production time and costs, to say nothing of improving product quality.

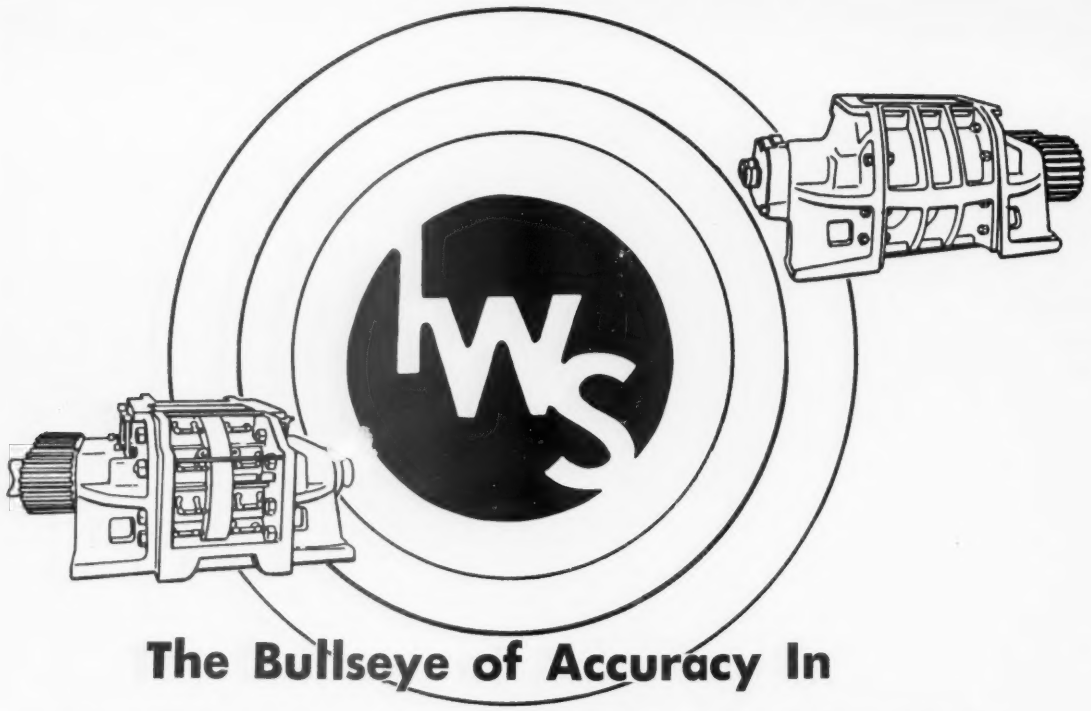
Let us help you select the right grade for your purpose.

NEVILLE CHEMICAL CO.

PITTSBURGH 25, PA.

Plants at Neville Island, Pa., and Anaheim, Cal.

Chemicals for the Rubber Industry



The Bullseye of Accuracy In

BANBURY REBUILDING

With the Maximum of Time Saved

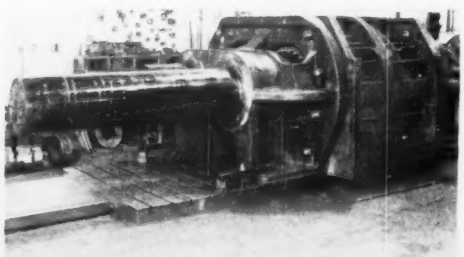
WHEN your Banbury Mixer needs repairing or rebuilding, give us a call.

Interstate Rebuilding Service assures you the right answer to two chief concerns; 1—That every worn part will be restored to correct dimensions and contour or replaced new. 2—That the work be expedited to hold your "down time" to the minimum.

Our nine-step method of rebuilding and hard surfacing your Banbury body has been perfected through years of exclusive specialization rapidly approaching the one-score mark. An Interstate-rebuilt Banbury body has that "good as new" efficiency you seek.

Interstate facilities handle every size of Banbury. It will cost you nothing to have an estimate. One of our engineers will visit your plant and inspect your installation at your request.

We also have spare parts for all mixer sizes. Shown at right is a No. 27 Body rebuilt by Interstate, reassembled and mounted on bed plate in our plant ready for customer to see it running.



SERVING THE RUBBER INDUSTRY

EXCLUSIVE SPECIALISTS IN BANBURY MIXER REBUILDING

INTERSTATE WELDING SERVICE

Main Offices – Metropolitan Bldg., AKRON 8, OHIO Phone JE-7970

and now Pyratex

a new cord treatment for new tire toughness!

Naugatuck – developer of the first natural latex for tire cord treatment, then the first reclaim dispersion, and later GR-S plus Resorcinal – now offers you a special vinyl pyridine latex that increases rubber-to-fabric adhesion up to 50%!

New Pyratex

- binds nylon to rubber with a grip almost as strong as the cord itself.
- retains its outstanding adhesion even under the severe heat and flexing of high-speed tire travel.

What's more, this superior solutioning agent...

- gives improved dip processing.
- greatly reduces "curing blows."
- lessens squeeze roll build-up.
- saves substantially on scrap fabric losses.

You'll find Pyratex will raise the performance of reinforced rubber in airplane, truck, bus, and automobile tires, in V-belts and conveyor belts—*wherever* fatigue resistance and ply separation pose problems.

New Pyratex is available for your own further compounding, or as a **Lotol, custom-compounded and ready to use—with good storage stability.** To find out more about how it can help your product—economically—write on your letterhead to the address below.

Naugatuck Chemical

Division of United States Rubber Company

1011 ELM STREET
NAUGATUCK, CONNECTICUT

BRANCHES: Akron • Boston • Charlotte • Chicago • Los Angeles • Memphis • New York • Philadelphia • **IN CANADA:** Naugatuck Chemicals, Elmira, Ontario

Rubber Chemicals • Aromatics • Synthetic Rubber • Plastics • Agricultural Chemicals • Reclaimed Rubber • Latices

for faster, easier dispersion

SOLKA®-FLOC

. . . now with Better Than Ever dispersion properties

Always easy to disperse, new, improved SOLKA-FLOC now makes possible *even greater* simplification of the critical mixing phase. With this easier, faster dispersion there's less need than ever for costly, time-consuming master batching and refining.

This important development makes SOLKA-FLOC more effective in every way! Now *to a greater degree*, products processed with SOLKA-FLOC can have controlled shrinkage, reduced blistering, sharper designs, harder and smoother surfaces, reduced nerve.

Whatever the product—tiling, soling, matting, molded or extruded goods—new, improved SOLKA-FLOC could mean a better, more salable product . . . bigger profits . . . lower costs! Find out what this versatile material can do for *your* processing. Write Technical Service, Dept FG-11, at Boston for information and samples.

BROWN COMPANY, Berlin, New Hampshire
CORPORATION, La Tuque, Quebec

General Sales Offices: 150 Causeway Street, Boston 14, Mass.
Dominion Square Building, Montreal, Quebec

Visit us at Booth 222, 24th Exposition of Chemical Industries, Philadelphia, November 30—December 5.

REMEMBER THIS *tread?*

It is the tread of the Dayton "Thorobred" ... first tire in the industry to have a white tread and red sidewall

A tough job, indeed, would be that of picking from the scores of well-known automobile tires—either of yesterday or today —*one* tire as being the most distinctive in appearance. On what could you base such a selection . . . tread design? . . . color, perhaps?

Whatever tire you might finally select, we're sure you'd dwell long on the striking features that distinguished the "Thorobred." Introduced in 1912 by the Dayton Rubber Company, the singular design of its gleaming white tread, and the dark red of its sidewalls made the "Thorobred" one of the most unique tires on the road.

Half a decade *before* the "Thorobred," The Bridgwater Machine Company began manufacturing molds for the tire industry. In the near half-century since, we have not only watched the pageant of "name" tires rolling from the great rubber plants, but in our *own* shops we have produced the molds for most of them.

Typical of the specialized service Bridgwater makes available to the tire industry *today,* are the modern, complete facilities of our Athens Machine Division, the only plant in the world devoted *exclusively* to tire mold making.

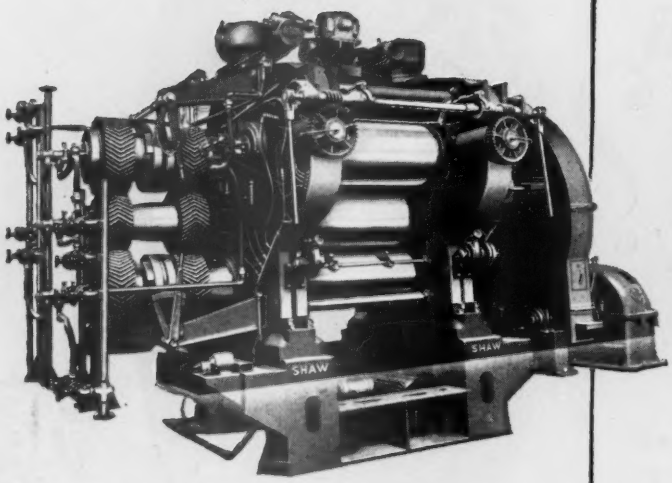
Here, the specialized skills of Bridgwater's long experienced engineers and metalworking craftsmen are focused on the sole job of making higher quality molds at the favorable costs well known to the tire industry.

ATHENS MACHINE DIVISION

THE BRIDGWATER MACHINE COMPANY

Akron, Ohio

1784

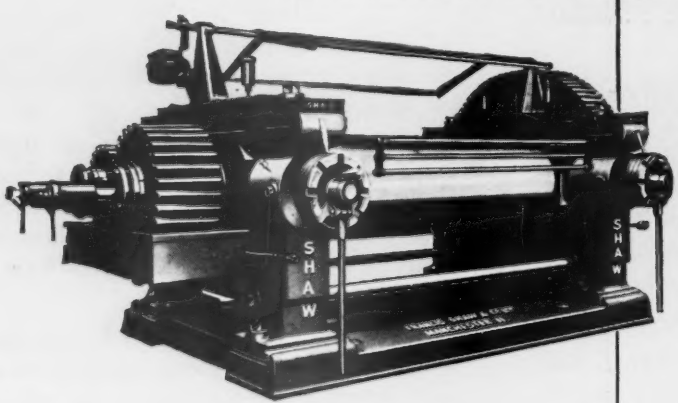


68" x 24" FOUR BOWL CALENDER

There is a range of Shaw Precision Calenders with two to five bowls for all types of Rubber and Plastics. Refinements of design include bored and drilled rolls for temperature control, flood lubrication, hydraulically operated jacks for zero clearance, etc., etc.

FOR HEAVY DUTIES in rubber and plastics

84" x 24" HEAVY DUTY MILL



Heavy Duty Mixing and warming Mills incorporating the latest features of design. Supplied with water-cooled or flood lubricated bearings, drilled rolls for accurate temperature control. The model shown is an 84" x 24" Mill of exceptionally sturdy build for heavy duties. This machine is fitted with turnover type steam or water connections to the rolls. Mills also available in standard sizes of 13" x 6", 24" x 12", 42" x 16", 50" x 20", 60" x 22".

SHAW

CALENDERS, MIXING AND WARMING MILLS

FRANCIS SHAW & CO LTD
MANCHESTER 11 ENGLAND
TELEPHONE: EAST 1415/8
GRAMS: CALENDER, MANCHESTER.
London Office 34 VICTORIA STREET LONDON SW1
Phone Abbey 1800 - Grams Vibrate Phone London

Rooster 28c8

Enquiries to Francis Shaw (Canada) Limited, Grahams Lane, Burlington, Ontario, CANADA

for better working conditions . . .

Calco MBTS scores high in low dusting!

Settle your dusting problems once and for all with CALCO MBTS. It contains an effective dedusting agent . . . and a lubricant to assure good dispersion.

Calco®

AMERICAN Cyanamid COMPANY

CALCO CHEMICAL DIVISION

INTERMEDIATE & RUBBER CHEMICALS DEPARTMENT

BOUND BROOK, NEW JERSEY

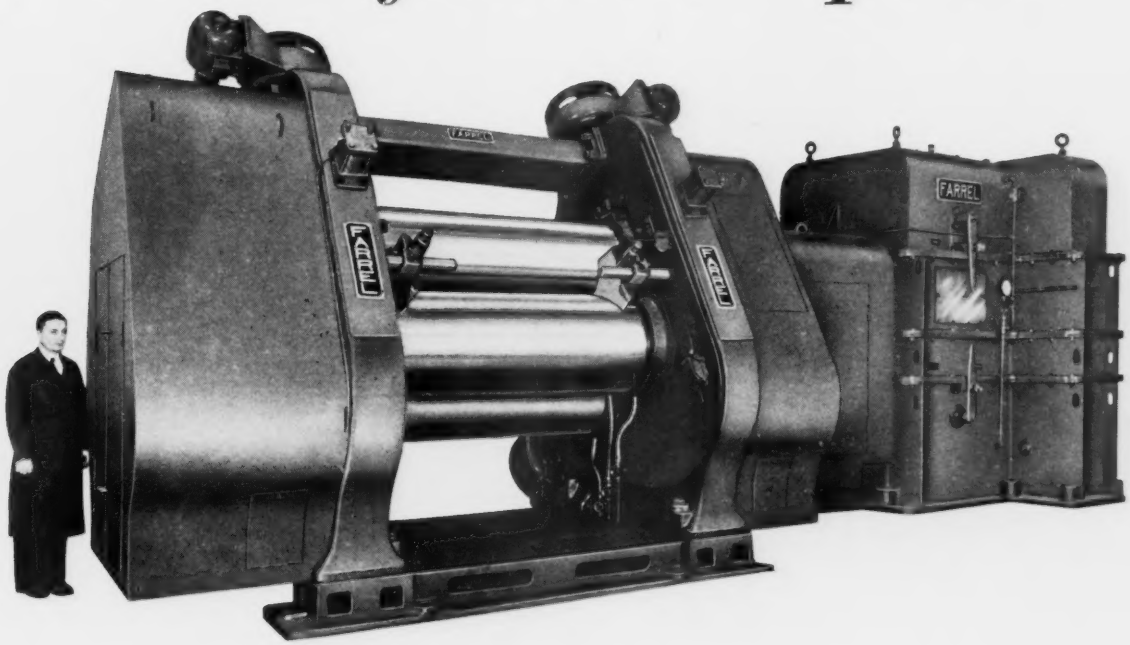
SALES REPRESENTATIVES AND WAREHOUSE STOCKS: Akron Chemical Company, Akron, Ohio • Ernest Jacoby and Company, Boston, Mass. • Herron & Meyer of Chicago, Chicago, Ill. • H. M. Royal, Inc., Los Angeles, Calif. • H. M. Royal, Inc., Trenton, N. J. In Canada: St. Lawrence Chemical Company, Ltd., Montreal and Toronto

Calco MBTS scores high in low dusting!

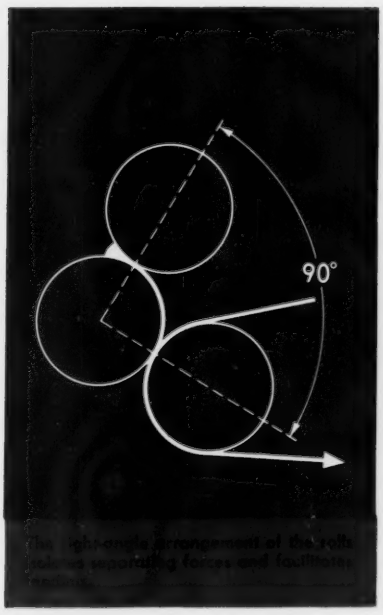
Calco®

see reverse side

A manufacturer reports:



MATERIAL SAVED AND PRODUCTION DOUBLED WITH NEW FARREL® TRI-ANGULAR CALENDER



A famous manufacturer using the new Farrel-Birmingham Tri-angular calender for a coating process, has found it possible to reduce the allowable tolerance to plus or minus 2/10 ounces per square yard. Noted were substantial savings in material due to the machine's extreme accuracy of gauge.

Production speed has been advanced to 80 yards per minute, more than doubling the rate of output attained with previous equipment, while quality is more uniform.

With only two rolls in any plane, because of the right-angle arrangement of the rolls, there is no pressure from a third roll to affect roll settings and cause fluctuations in gauge. This angle of the rolls also makes feeding easier by providing better support to the feed bank. Both the bank and the guides are easily accessible from floor level.

Optional features of this type of calender include rolls drilled longitudinally for close temperature control, a motorized crossed-axes device for regulation of roll crown, and the Farrel Uni-drive.

The Tri-angular calender is the machine of the future—for any type of production requiring two passes. It is available in a choice of sizes. Write for further information.

FARREL-BIRMINGHAM COMPANY, INC., ANSONIA, CONN.

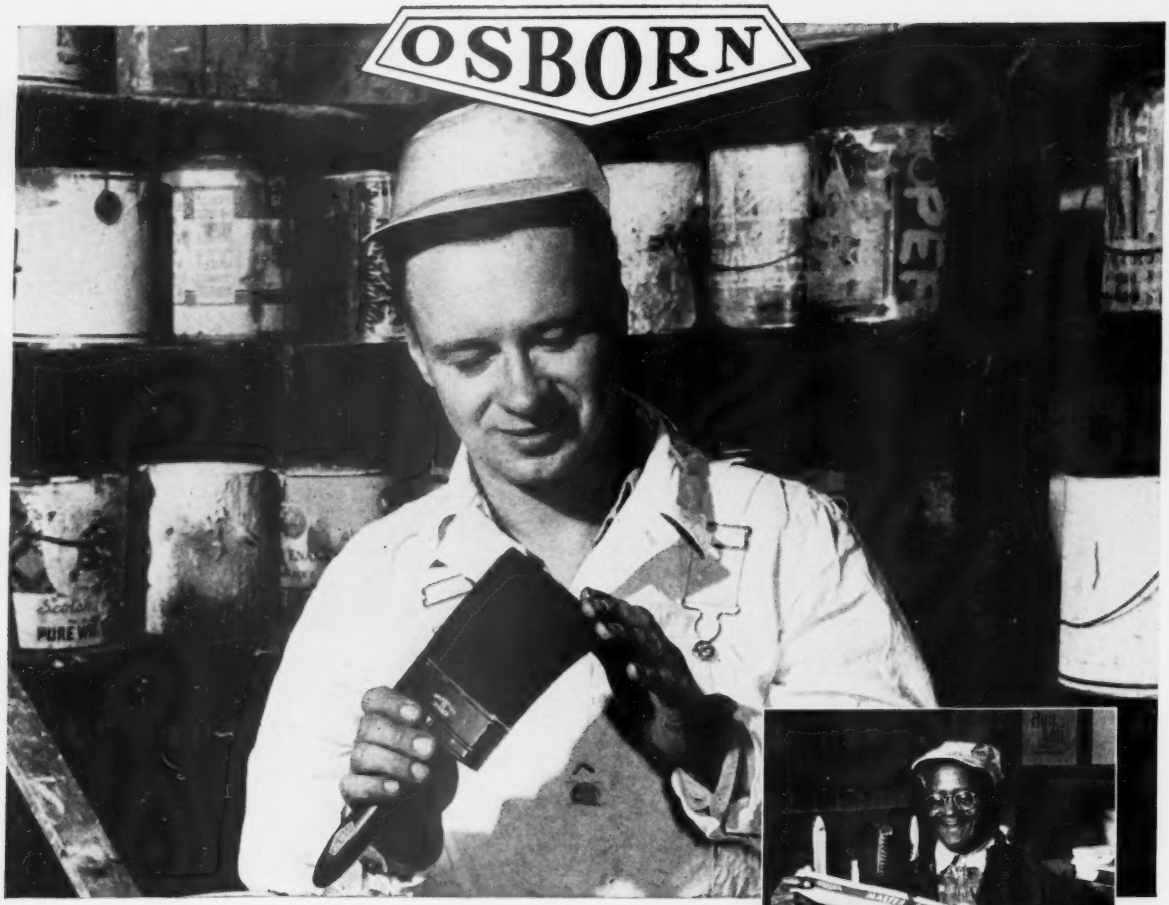
Plants: Ansonia and Derby, Conn., Buffalo, N. Y.

Sales Offices: Ansonia, Buffalo, New York, Akron, Chicago, Los Angeles, Houston

Farrel-Birmingham

FB-868

OSBORN



He can show you how to save time and money

THE man who uses brushes in his daily work knows the best when he sees it . . . he just looks for the name "OSBORN". His quick "OK" can be your clue to important savings in purchasing time and cost. All you need to do is put the name "OSBORN" on your order cards. Then buying is *quick* and *sure*. No need for shopping around. No risk of sacrificing quality.

You can buy OSBORN Brushes *automatically* with confidence because their workmanship and materials are backed by 61 years of OSBORN service to Industry. Accepted as the standard of quality by purchasing agents today, Osborn Brushes are stocked by leading Industrial Distributors in your area. *The Osborn Manufacturing Company, Dept. BB-4, 5401 Hamilton Avenue, Cleveland 14, Ohio.*

HANDY CATALOG. Simplifies specifying of Osborn maintenance and paint brushes. Write for your free copy today.

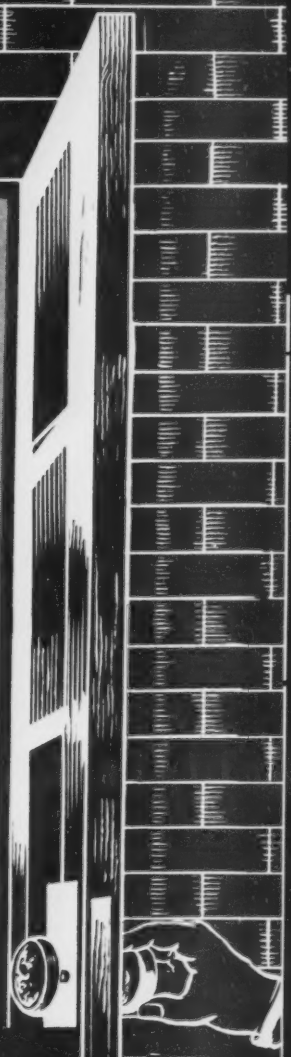
Osborn Brushes

OSBORN POWER, MAINTENANCE AND PAINT BRUSHES AND FOUNDRY MOLDING MACHINES

OPEN THE DOOR to "Dust Free" Factory Conditions and Lower Costs —

GLYCERIZED LUBRICANT

(LIQUID CONCENTRATE)



THE ALL PURPOSE EXTERNAL LUBRICANT

NATURAL SYNTHETIC AND RECLAIM STOCKS

DOES NOT INTERFERE WITH TACK OF KNIT

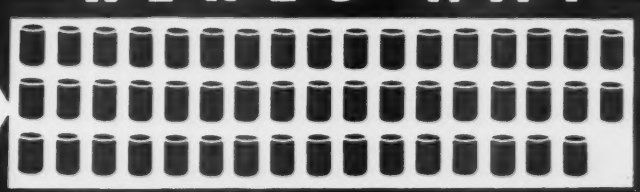
Prevents adhesion of hot rubber slabs when stored . . . banishes dust nuisance by replacing soapstone or talc . . . prevents sticking during cure of extrusions and flat strips called tubing . . . excellent release agent for molds, mandrels, cure bags, lead drums . . . superior manufactory for washing and finishing inner tubes; imparts satiny finish . . . greatly aids in the processing of insulated wire and cable. The Production Departments and Laboratories of many rubber manufacturers, through years of using GLYCERIZED, give ample proof of its outstanding merit as a lubricant for natural, synthetic and reclaimed stock.

Economical?

HIGHLY CONCENTRATED

1 drum makes up to 50 drums of working solution.

HERE'S WHY



Also Mfgrs. of

RUBBEROL AND **SYNTHOL** TWO OTHER FACTORY PROVED RUBBER PROCESSING AGENTS

QUALITY SINCE 1884

GENSEKE BROTHERS

RUBBER MATERIALS DIVISION

West 48th Place and Whipple Street Chicago 32, U.S.A.

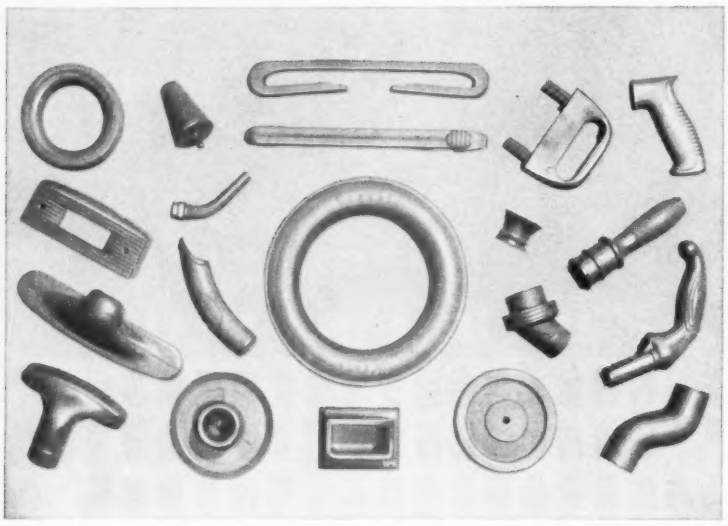
Republic Rubber Chief Engineer C. E. McCormick reports:

"BALDWIN gave us exactly the rugged precision presses we needed"

REPUBLIC RUBBER'S PROBLEM: Lee Rubber & Tire Corporation's Republic Rubber Division in Youngstown, Ohio, needed higher pressure presses that could combine rugged construction with precision performance.

THE BALDWIN SOLUTION: Republic's Chief Engineer, C. E. McCormick explains how they found the answer to their problem: "Baldwin offered a clean cut design which gave us both the greater capacity and closer tolerances we needed to mold our precision industrial rubber goods. We liked especially the way Baldwin engineers sat down with us and worked out some special problems. For example, they altered the design for us to add push-back cylinders which we wanted to have for faster operating.

"The Baldwin presses we bought at that time (1947) not only were lower in cost than competitive models, but they offered more for the investment than any of the others. For example, standard equipment on the Baldwin presses included bronze bushed cylinders and rams, and steel side plates extending clear to the floor to make cleaning and maintenance easier."



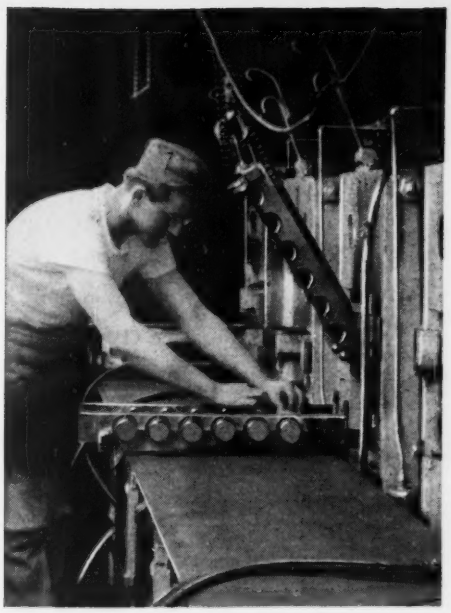
This assortment of molded rubber goods is typical of the precision products made by Republic on their Baldwin presses which have the minimum of side play and platen or head deflection required to produce articles of highest quality and dimensional accuracy.

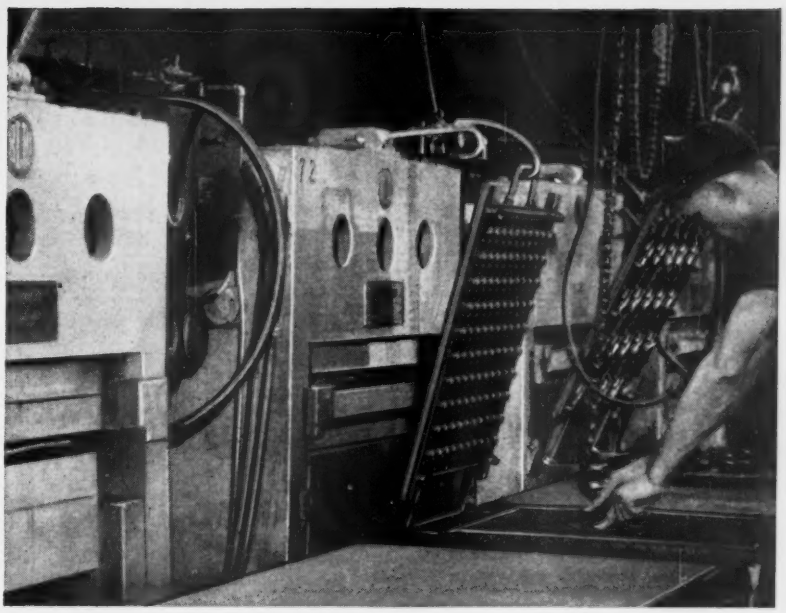
OPPOSITE PAGE:

Top: A battery of 24" x 24" Baldwin Steam Platen Presses producing molded rubber parts for a vacuum cleaner, in Republic Rubber's Youngstown plant.

Bottom left: Close-up of Republic press operator preparing a mold for insertion in one of a line of 24" x 24" Baldwin presses.

Bottom right: Operator removing the mold from one of Republic Rubber's five 32" x 32" Baldwin platen presses. Republic reports that these rugged presses have been trouble-free, requiring no maintenance in six full years of operation.





WHAT'S YOUR PRESSING PROBLEM?

You will find it equally profitable to take your pressing problem to Baldwin. Contact your B-L-H representative or write for Bulletin 290 to Dept. 4741, Baldwin-Lima-Hamilton Corp., Philadelphia 42, Pa.

BALDWIN-LIMA-HAMILTON

Philadelphia 42, Pa. • Offices in Principal Cities

REPRINTED FROM AN OFFICIAL ADVERTISEMENT PUBLISHED ON NOVEMBER 18, 1953

RUBBER PRODUCING FACILITIES DISPOSAL COMMISSION

Invitations for Proposals

Pursuant to the Rubber Producing Facilities Disposal Act of 1953 (P.L. 205, 83d Congress, 1st Session, approved August 7, 1953) the Rubber Producing Facilities Disposal Commission announces that it will receive written proposals for the purchase (or, in certain instances indicated below, the lease) of the properties and facilities described below, hereafter collectively referred to as "the rubber-producing facilities". Such proposals may be submitted at any time beginning November 25, 1953 through May 27, 1954, (unless extended by the Commission upon adequate notice) at the Office of the Commission, 811 Vermont Avenue, Washington 25, D. C. Detailed information concerning the form of proposals and the manner in which they are to be submitted may be obtained from the Secretary of the Commission upon request.

FACILITIES: The facilities offered for sale consist of 13 plants for the manufacture of butadiene-styrene type rubber (GR-S), 2 plants for the manufacture of butyl rubber (GR-I), 1 plant for the manufacture of styrene, 8 plants for the manufacture of butadiene, 1 plant for the manufacture of dodecyl mercaptan, a fleet of 448 pressure tank cars (ICC Classification—ICC-104AW) and miscellaneous items of equipment.

The plants which are in operating condition and which are offered for sale as complete operating units are set forth in the following table.

These plants are operated for the account of the Reconstruction Finance Corporation as units in an integrated synthetic rubber industry. The 13 GR-S plants and the 2 GR-I plants are practically the exclusive domestic sources of these types of rubber. All of the butadiene consumed in the domestic manufacture of synthetic rubber is produced in the butadiene plants offered for sale or lease. The styrene plant produces a significant portion of the total requirements of the synthetic rubber program, the remainder being purchased from commercial sources. Dodecyl mercaptan is an ingredient of one type of GR-S, and the plant offered for sale produces the program's requirements for this chemical.

Detailed descriptive brochures relating to each of the plants may be obtained upon application to the Secretary of the Commission. Similarly, descriptive inventory of the miscellaneous facilities hereby offered for sale will be available.

Plancor No.	*Present Operator*	*Location*	*Maximum Annual Capacity*
BUTADIENE-STYRENE RUBBER (GR-S) PLANTS			
876	Copolymer Corp.	Baton Rouge, La.	49,000 LT
127	Firestone Tire & Rubber Co.	Akron, Ohio	30,900 LT
1056	Firestone Tire & Rubber Co.	Lake Charles, La.	99,600 LT
877	General Tire & Rubber Co.	Baytown, Texas	44,000 LT
983	B. F. Goodrich Co.	Port Neches, Texas	90,000 LT
980	B. F. Goodrich Co.	Institute, W. Va.	122,000 LT†
126	Goodyear Synthetic Rubber Corp.	Akron, Ohio	15,200 LT
956	Goodyear Synthetic Rubber Corp.	Houston, Texas	99,600 LT
1278	Kentucky Synthetic Rubber Corp.	Louisville, Ky.	44,000 LT
611	Midland Rubber Co.	Los Angeles, Calif.	89,000 LT
982	Phillips Chemical Co.	Borger, Texas	66,000 LT
129	U. S. Rubber Co.	Naugatuck, Conn.	22,200 LT
983A	U. S. Rubber Co.	Port Neches, Texas	89,400 LT
BUTYL RUBBER (GR-I) PLANTS			
1082	Humble Oil & Refining Co.	Baytown, Texas	43,000 LT
572	Esso Standard Oil Co.	Baton Rouge, La.	47,000 LT
BUTADIENE PLANTS—PETROLEUM			
706	Cities Service Refining Corp.	Lake Charles, La.	60,000 ST
152	Copolymer Corp.	Baton Rouge, La.	23,000 ST
485	Humble Oil & Refining Co.	Baytown, Texas	49,000 ST
933	Neches Butane Products Co.	Port Neches, Texas	197,000 ST
484	Phillips Chemical Co.	Borger, Texas	71,200 ST
1063	Sinclair Rubber, Inc.	Houston, Texas	78,000 ST
963	Shell Chemical Corp.	Los Angeles, Calif.	61,000 ST‡
1593	Standard Oil Co. of California	El Segundo, Calif.*	
STYRENE PLANT			
929	Dow Chemical Co.	Los Angeles, Calif.	57,000 ST
OTHER FACILITIES			
543	U. S. Rubber Co.	Naugatuck, Conn.	

† This facility is now in stand-by.

‡ Represent a tandem operation whereby Standard Oil Co. of California's production of crude butadiene is transferred to Shell Chemical Corp. for purification along with Shell's crude production.

* This facility is erected upon land held under an assignable lease which expires on February 15, 1958, from Standard Oil Company of California; all other plants are erected on property owned in fee by the government.

In addition to the foregoing, there are offered for sale, or alternatively for lease, 2 plants for the manufacture of butadiene from alcohol, located respectively at Louisville, Kentucky, and Kobuta, Pennsylvania. The plant at Louisville, Kentucky, Plancor 1207, has been operated, and is now being maintained in stand-by, by Union Carbide and Carbon Corp. and has an annual capacity of 87,000 short tons. The plant at Kobuta, Pennsylvania, Plancor 483, has been operated, and is now being maintained in stand-by, by the Koppers Company, Inc., and has an annual capacity of 128,000 short tons. These are the only facilities of any sort offered for lease. The Commission will entertain proposals for the leasing of these plants promptly and in advance of consideration of disposal of the other facilities. Such leases may run for not less than 1 nor more than 3 years. Proposals for the purchase of these facilities will be received in the same manner as prescribed for the purchase of the other facilities.

The Rubber Producing Facilities Disposal Act of 1953 prescribes in detail, as well as generally, procedural and substantive standards pursuant to which the sale of these facilities by the Disposal Commission is to be effectuated. To facilitate compliance with these standards the Disposal Commission has prepared Instructions for the Submission of Proposals, which set forth the requirements of the Commission with respect to such proposals, and copies thereof will be available upon application to the Secretary of the Commission. Subject to the foregoing, the following additional information concerning the program of sale is announced:

CONTINUED OPERATION OF PLANTS: As a condition to sale, the Commission is required to be satisfied that the prospective purchaser actually intends to operate the facility or facilities for the purpose of manufacturing synthetic rubber or its component materials. The purchaser must also agree to comply with the terms of a "National Security Clause", having terms, conditions, restrictions and reservations which will assure the prompt availability of the facilities, or facilities of equivalent capacity, for the production of synthetic rubber and the component materials thereof for a period of 10 years from the date of the contract. In consonance with these requirements, while the Commission will entertain proposals for the acquisition of portions of the productive capacity of particular facilities, as further discussed in the Instructions for the Submission of Proposals, it will not entertain proposals for the piece-meal acquisition of individual items of equipment except such items as are listed in the inventory of miscellaneous equipment referred to above.

FINANCING: Proposals for purchase shall provide for the payment of not less than 25% of the purchase price in cash, and the remainder may be financed by a first lien purchase money mortgage maturing in not more than 10 years and providing for periodic amortization (amortization in equal annual instalments is not required). The interest rate upon the balance of the purchase price represented by the mortgage shall be 4% per annum.

Proposals for purchase shall be accompanied by a deposit of cash or United States Government bonds of face amount equal to 2½ per centum of the gross amount proposed to be paid but not exceeding $250,000 for each facility; provided, however, that the deposit required in the case of a proposal for one of a number of facilities on an alternative basis shall be the same as would be required if such proposal were for only the facility for which the highest amount is proposed to be paid. Except in the case of purchasers, deposits shall be refunded without interest. In the case of purchasers, deposits made hereunder shall be applied without interest to the purchase price.

PROCEDURE SUBSEQUENT TO THE SUBMISSION OF PROPOSALS: During a period of 7 months (unless extended by the Commission upon adequate notice to those submitting proposals) following the termination of the period for the receipt of proposals, the Commission will negotiate for the sale of the facilities with those who have submitted proposals. In accordance with the terms of the Act, negotiations for the sale of each type of plant (i.e., GR-S, GR-I, Butadiene, et cetera) will be limited to those persons having submitted a proposal for the purchase of such a type plant. Such negotiations will be conducted with due regard to the several purposes of the Act that the disposal of the synthetic rubber producing facilities establish a free, competitive, synthetic rubber industry, afford small-business enterprises and other users, the opportunity to obtain a fair share of the end products of the facilities sold and at fair prices, be consistent with national security, and realize full fair value for the facility or facilities, taking into consideration the policy set forth in Section 2 of the Act.

For further information and details apply to FERRIS B. THOMAS, Secretary.

HOLMAN D. PETTIBONE,
LESLIE R. ROUNDS,
EVERETT R. COOK,
Commissioners

November 18, 1953

RUBBER PRODUCING FACILITIES DISPOSAL COMMISSION
811 Vermont Avenue, N.W.
Washington 25, D. C.

Proof of CABOT'S 100% Service in the THERMAL BLACK Field

A Complete Range of Thermal Carbon Blacks
Available in Commercial Quantities
Throughout the World

GODFREY L. CABOT, INC. BOSTON 10, MASS.

RC PLASTICIZER ODP

Now Readily Available in Bulk

This outstanding phthalate mixed ester plasticizer (iso-octyl iso-decyl phthalate), combines the excellent all-around performance of the usual phthalate esters with the following extras:

1. **Low Volatility!**
2. **Superior Water Resistance!**
3. **Improved Heat Stability!**

Check RC PLASTICIZER ODP for use in:

Film and Sheeting
High Hardness Plastisols
Electrical Extrusions
Fabric Coatings
Natural and Synthetic Rubbers
Molded Articles

RUBBER CORPORATION OF AMERICA ALSO SUPPLIES THESE OUTSTANDING PLASTICIZERS:

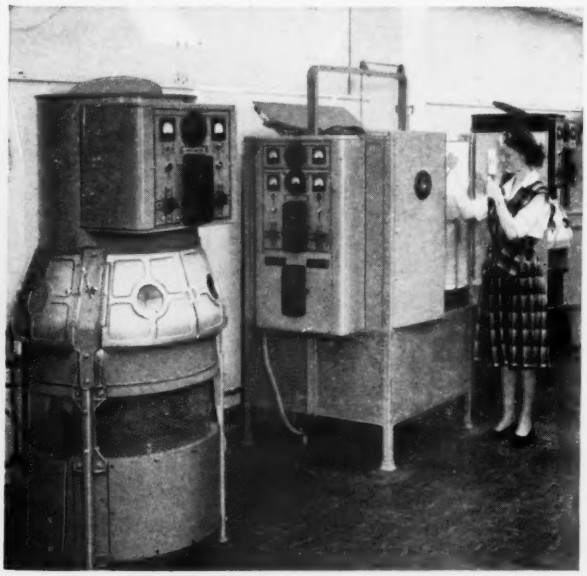
DIOP (DI-ISO-OCTYL PHTHALATE)
DIOA (DI-ISO-OCTYL ADIPATE)
DBP (DIBUTYL PHTHALATE)
O-16 (ISO-OCTYL PALMITATE)
TG-8 (TRIETHYLENE GLYCOL DICAPRYLATE)
DIOS (DI-ISO-OCTYL SEBACATE)

Write today for samples and brochure on RC products.

RC RUBBER CORPORATION OF AMERICA
274 Ten Eyck Street, Brooklyn 6, N. Y.
111 West Monroe Street, Chicago 3, Ill.
SALES REPRESENTATIVES: Ernest Jacoby & Co., 79 Milk St., Boston 9, Mass.; Charles Larkin II, 250 Delaware Avenue, Buffalo 2, N. Y.

ATLAS-OMETERS

. . . used in Quality Control for plastic or rubber products at B. F. Goodrich Company



An important part of the tests at B. F. Goodrich Company Laboratories involves subjecting products to the destructive effects of weathering conditions they will be expected to meet in service. By using Atlas Fade-Ometers and Weather-Ometers it is often possible to obtain quickly, in advance of actual service, assurance that new materials will have satisfactory resistance to cracking, sun-checking, chalking, fading or bleeding of color, or to loss of elastic properties.

In the Fade-Ometer—used to check the reaction of any material or type of finish to the deteriorating effects of sunlight—plastic materials such as Koroseal are tested for permanence of bright color. The Weather-Ometer—which accurately duplicates rain, heavy dew, sunlight and thermal shock—offers complete control of these elements so that any desired climatic cycle can be obtained. Results of tests in the Weather-Ometer are used in the evaluation of the aging and weathering characteristics of rubbers and plastics under accelerated conditions corresponding to outdoor exposure.

The machines are easy to operate, fully automatic, and may safely be left in continuous operation overnight without attention from the operator.

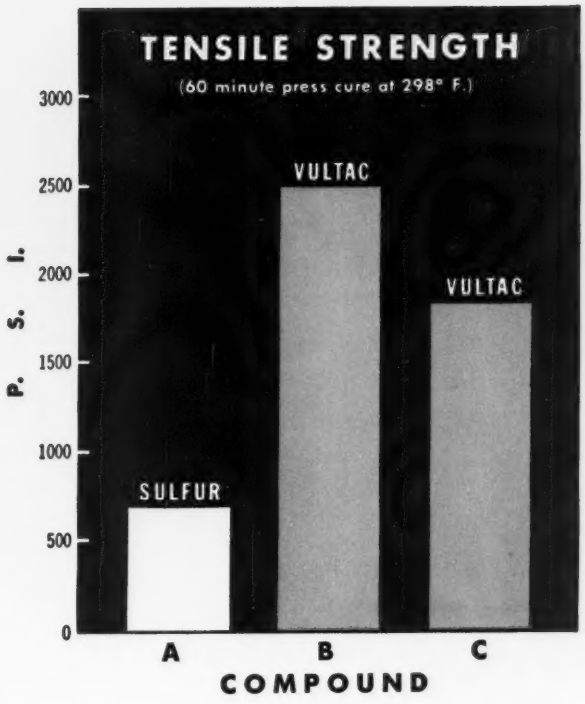
ATLAS ELECTRIC DEVICES CO.
361 West Superior St., Chicago 10, Illinois
WEATHER-OMETERS • FADE-OMETERS • LAUNDER-OMETERS

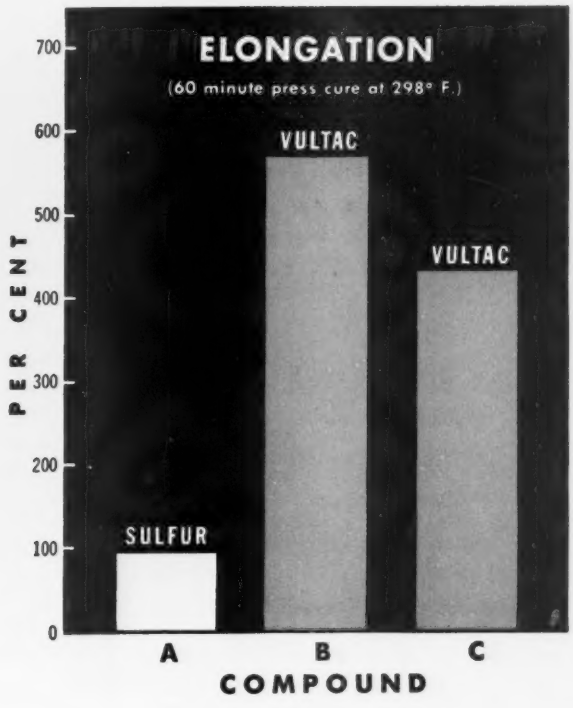
Looking for better physicals?

TRY VULTAC

Here's what VULTAC #3 does in a high zinc oxide, semi-hard compound

COMPOUND	A	B	C
Smoked Sheets	100	100	100
Zinc Oxide	70	70	70
Antioxidant	1	1	1
ETHYLAC	1	1	1
Sulfur	20	—	—
VULTAC #3	—	40	60
Total	192	212	232





The above is indicative of what the VULTACS do to the physical properties of a high zinc oxide compound when used as a total replacement for sulfur.

For samples and technical information write

SHARPLES CHEMICALS INC.

A SUBSIDIARY OF THE PENNSYLVANIA SALT MANUFACTURING COMPANY

500 Fifth Ave., New York • 80 E. Jackson Blvd., Chicago • 106 S. Main St., Akron
Martin, Hoyt & Milne Inc., San Francisco • Los Angeles • Seattle • Portland
Shawinigan Chemicals, Ltd. • Montreal • Toronto
Airco Company International, New York

Hose REINFORCEMENT WIRE

JOHNSON special bronze plated wire, for many years the preference of major tire manufacturers — now available for vacuum and defroster hose producers, in addition to conventional liquor finish wire.

- ***Uniformly clean finish . . .***
- ***Maximum adhesion to rubber . . .***
- ***Higher elongation . . .***
- ***Extra fatigue properties . . .***

Johnson line of specialty wires also includes oil-tempered and cold-drawn brush wire — tire bead wire — steel wire for field telephones — music spring wire.

If it's steel wire—
JOHNSON specialists make it better

JOHNSON STEEL & WIRE CO. INC.

Worcester 1, Mass. Akron, Ohio Los Angeles, Calif.

A SUBSIDIARY OF PITTSBURGH STEEL COMPANY

for your technical book shelf

PNEUMATIC TYRE DESIGN

by
E. C. WOODS

This monograph, the first of a series to be issued by the Institution of the Rubber Industry (England), traces the development of tire design since 1845. It covers tread design, mold design, cord angles, layout, ply widths, building specifications, etc. A full section is devoted to the calculation of design charts.

6 x 9 in. 96 pp. Bibliography Subject Index

Price: $3.50

send for your copy today!

Rubber Age
250 West 57th Street,
New York 19, N. Y.

Please send me .... copies of the PNEUMATIC TYRE DESIGN, by C. E. Woods. Enclosed find check for $.....

Name .....

Address .....

City .....**Zone** ... **State**.....

(Add 3% Sales Tax for copies mailed to New York City address)

Insure the good reputation of *your* products!!

• Be safe • be sure • be satisfied

SPECIFY EMERY FATTY ACIDS *everytime!*

Good news about Plasticizers!

Plastolein Plasticizers will soon be available in increased quantities at lower prices. Now's the time to investigate these important plasticizers in vinyls, cellulosics and synthetic rubbers:

Plastolein 9050 DHZ
(di-2-ethylbutyl azelate)
Plastolein 9057 DIOZ
(di-iso-octyl azelate)
Plastolein 9058 DOZ
(di-2-ethylhexyl azelate)
Plastolein 9055 DGP
(diethylene glycol dipelargonate)
Plastolein 9250 THFO
(tetrahydrofurfuryl oleate)
Plastolein 9715 Polymeric
Plastolein 9720 Polymeric

In selecting the constituents that go into your products, you can't be too careful in getting the highest quality available, consistent with performance requirements and cost limitations.

When it comes to fatty acids, this careful selection always leads to Emery... because Emery Fatty Acids are safeguarded by modern processing methods and strict control of specifications, compositions and stability.

These advanced processing and control methods have been an outgrowth of Emery's pioneering in better and unique processes and products exemplified by the following innovations.

Emersol Solvent Crystallization Process
Lowest I.V. Crystalline Stearic Acid
Low-Titer Semi-Drying Fatty Acids
Ozone-Oxidation of Oleic Acids
Colgate-Emery Fat Splitting
High Pressure Dimerization
Low Linoleic Oleic Acid
Azelaic and Pelargonic Acids

So, when you need fatty acids, select the best... select from Emery's complete line of Emersol Stearic and Palmitic Acids, Hyfac Hydrogenated Fatty Acids, Emersol Oleic Acids, Vegetable and Animal Fatty Acids, and Special Fatty Acids and Derivatives.

See us at Booth No. 718
24th Exposition of
CHEMICAL INDUSTRIES
COMMERCIAL MUSEUM
Philadelphia, Nov. 30 to Dec. 5, 1953

Emery

Fatty Acids & Derivatives
Plastolein Plasticizers
Twitchell Oils, Emulsifiers

Emery Industries, Inc., Carew Tower, Cincinnati 2, Ohio
Export: 5035 RCA Bldg., New York 20, New York
New York • Philadelphia • Lowell, Mass. • Chicago • San Francisco
Schibley & Ossmann, Inc., Cleveland • Ecclestone Chemical Co., Detroit
Warehouse stocks also in St. Louis, Buffalo, Baltimore and Los Angeles

Hose REINFORCEMENT WIRE

JOHNSON special bronze plated wire, for many years the preference of major tire manufacturers — now available for vacuum and defroster hose producers, in addition to conventional liquor finish wire.

- ***Uniformly clean finish . . .***
- ***Maximum adhesion to rubber . . .***
- ***Higher elongation . . .***
- ***Extra fatigue properties . . .***

Johnson line of specialty wires also includes oil-tempered and cold-drawn brush wire — tire bead wire — steel wire for field telephones — music spring wire.

If it's steel wire—
JOHNSON specialists make it better

JOHNSON STEEL & WIRE CO. INC.

Worcester 1, Mass. Akron, Ohio Los Angeles, Calif.

A SUBSIDIARY OF PITTSBURGH STEEL COMPANY

for your technical book shelf

PNEUMATIC TYRE DESIGN

by
E. C. WOODS

This monograph, the first of a series to be issued by the Institution of the Rubber Industry (England), traces the development of tire design since 1845. It covers tread design, mold design, cord angles, layout, ply widths, building specifications, etc. A full section is devoted to the calculation of design charts.

6 x 9 in. 96 pp. Bibliography Subject Index

Price: $3.50

send for your copy today!

Rubber Age
250 West 57th Street,
New York 19, N. Y.

Please send me .... copies of the PNEUMATIC TYRE DESIGN, by C. E. Woods. Enclosed find check for $.....

Name .....

Address .....

City .....**Zone** ... **State**.....

(Add 3% Sales Tax for copies mailed to New York City address)

Insure the good reputation of *your* products!!

• Be safe • be sure • be satisfied
SPECIFY EMERY FATTY ACIDS *everytime!*

Good news about Plasticizers!

Plastolein Plasticizers will soon be available in increased quantities at lower prices. Now's the time to investigate these important plasticizers in vinyls, cellulosics and synthetic rubbers:

Plastolein 9050 DHZ
(di-2-ethylbutyl azelate)
Plastolein 9057 DIOZ
(di-iso-octyl azelate)
Plastolein 9058 DOZ
(di-2-ethylhexyl azelate)
Plastolein 9055 DGP
(diethylene glycol dipelargonate)
Plastolein 9250 THFO
(tetrahydrofurfuryl oleate)
Plastolein 9715 Polymeric
Plastolein 9720 Polymeric

In selecting the constituents that go into your products, you can't be too careful in getting the highest quality available, consistent with performance requirements and cost limitations.

When it comes to fatty acids, this careful selection always leads to Emery... because Emery Fatty Acids are safeguarded by modern processing methods and strict control of specifications, compositions and stability.

These advanced processing and control methods have been an outgrowth of Emery's pioneering in better and unique processes and products exemplified by the following innovations.

Emersol Solvent Crystallization Process
Lowest I.V. Crystalline Stearic Acid
Low-Titer Semi-Drying Fatty Acids
Ozone-Oxidation of Oleic Acids
Colgate-Emery Fat Splitting
High Pressure Dimerization
Low Linoleic Oleic Acid
Azelaic and Pelargonic Acids

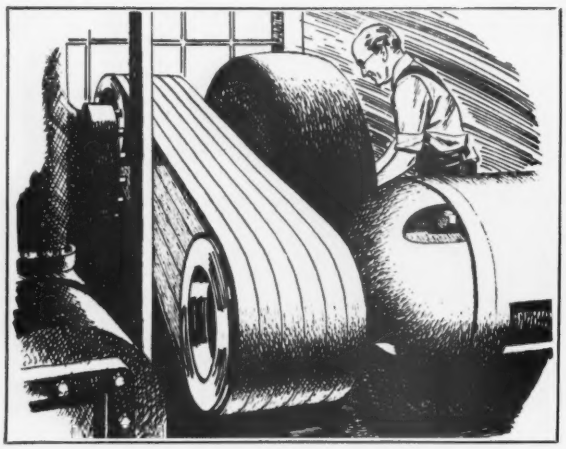
So, when you need fatty acids, select the best... select from Emery's complete line of Emersol Stearic and Palmitic Acids, Hyfac Hydrogenated Fatty Acids, Emersol Oleic Acids, Vegetable and Animal Fatty Acids, and Special Fatty Acids and Derivatives.

Emery

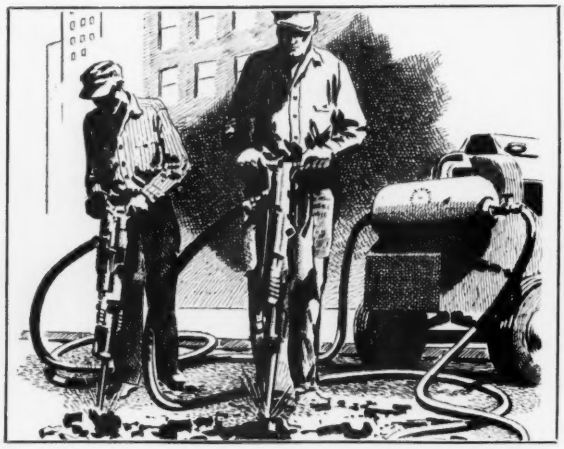
Fatty Acids & Derivatives
Plastolein Plasticizers
Twitchell Oils, Emulsifiers

Emery Industries, Inc., Carew Tower, Cincinnati 2, Ohio
Export: 5035 RCA Bldg., New York 20, New York
New York • Philadelphia • Lowell, Mass. • Chicago • San Francisco
Schibley & Ossmann, Inc., Cleveland • Ecclestone Chemical Co., Detroit
Warehouse stocks also in St. Louis, Buffalo, Baltimore and Los Angeles

See us at Booth No. 718
24th Exposition of
CHEMICAL INDUSTRIES
COMMERCIAL MUSEUM
Philadelphia, Nov. 30 to Dec. 5, 1953

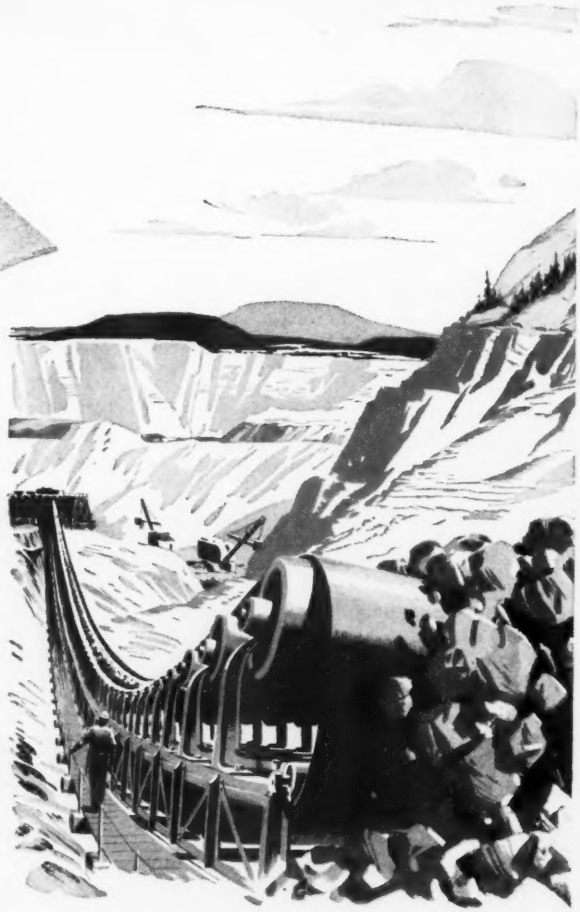


Wellington Sears has both cotton and synthetic fabrics to insure top performance and long life in products such as power transmission belts.



Shawmut Hose Duck is a soft, strong, plied-yarn fabric affording flexibility and good impregnation in a variety of hose applications.

YOU GET LONG SERVICE LIFE WITH WELLINGTON SEARS *BELTING DUCK*



Experienced industrial users specify Shawmut Belting Duck wherever exceptional strength, good adhesion, and bulking properties, *plus* economical cost, are needed, as in heavy-duty conveyor belts.

Product of an organization that has specialized in heavy-duty fabrics for over a century, this sturdy, pliable belting duck owes its strength to the carefully controlled construction and twist of the rugged plied yarns in the warp and filling.

With a complete line of cotton ducks for belting, hoses, and other mechanical rubber applications, Wellington Sears also has developed fabrics utilizing the unique properties of nylon, high-tenacity rayon, and other fibers.

If it's a rubber-and-fabric problem, talk it over with Wellington Sears.

Write for your free copy of "Modern Textiles for Industry" which includes pertinent information on rubber applications. Address: Wellington Sears Co., Dept. L-3, 65 Worth St., N. Y. 13.

Superior Fabrics for the Rubber Industry

- Belting duck
- Hose duck
- Enameling duck
- Army duck
- Single and plied-yarn chafers
- Sheeting
- Airplane cloth
- Balloon cloth
- Nylon, high tenacity rayon, other synthetics and combinations.

Wellington Sears

A SUBSIDIARY OF WEST POINT MANUFACTURING COMPANY

FIRST In Fabrics For Industry

WELLINGTON SEARS COMPANY, 65 WORTH STREET, NEW YORK 13, N. Y.

OFFICES IN: ATLANTA • BOSTON • CHICAGO • DETROIT • LOS ANGELES • NEW ORLEANS • PHILADELPHIA • SAN FRANCISCO • ST. LOUIS

SHELL DUTREX®

AN ECONOMICAL GROUP
OF PLASTICIZERS AND EXTENDERS
FOR RUBBER AND PLASTICS

SHELL OIL COMPANY
50 WEST 50th STREET, NEW YORK 20, NEW YORK
100 BUSH STREET, SAN FRANCISCO 6, CALIFORNIA

WHAT DO YOU WANT MOST FROM A PROCESS AID?

Better physicals, lower cost, processing ease—or the best combination of the three? The combination, of course. That's where Sun comes in. From its *complete* line, you can select the one process aid that will give you a finished product meeting specifications and costing the minimum to produce. For more information, call your nearest Sun office or write SUN OIL COMPANY, Philadelphia 3, Pa., Dept. RA-11.

INDUSTRIAL PRODUCTS DEPARTMENT

SUN OIL COMPANY

SUNOCO®

PHILADELPHIA 3, PA. ◆ SUN OIL COMPANY LTD., TORONTO & MONTREAL

RELIABLE ZINC OXIDES

AZO-ZZZ-44 and AZO-ZZZ-55 assure good dispersion and easy processing because of their uniform particle size and absence of extreme fines. With AZO-ZZZ-11, 22, 33, (Acicular types) and special grades, a complete range of zinc oxides is offered for every rubber requirement.

A RELIABLE SOURCE

American Zinc assures an uninterrupted supply of zinc oxide. Recent discovery and development of a new, large ore body, added to previous American Zinc reserves, provides sufficient ore to last many years at the current rate of production.

AZO ZZZ-44 ZZZ-55

AMERICAN ZINC SALES COMPANY

distributors for

AMERICAN ZINC, LEAD & SMELTING COMPANY

COLUMBUS, OHIO • CHICAGO • ST. LOUIS • NEW YORK

Buffalo's new powdered reclaim received a tremendous reception from the national press and industry!

It all started with a three page feature story in the August 29th issue of Business Week. Then the New York Times, Herald-Tribune, Wall Street Journal and many others were fast to act on the hottest news story to hit the rubber industry in many a moon.

"Flo-Mix" is an exclusive U. S. Rubber Reclaiming development that, to quote the Herald-Tribune, "will greatly increase the efficiency and speed of many manufacturing processes using rubber." Naturally faster in mixing and blending, this cleaner and easier handling reclaim brings you substantially lower costs Shipped in tank cars or in bags of uniform weight, it is adaptable for automatic weighing and handling.

"Flo-Mix" is especially suited for tire frictions, treads and sidewalls, molded mechanicals, footwear, soles and heels and industrial belting. A sister product, Buffalo Rubber Road Mix, is available for asphalt paving and specialty products. We've had a deluge of inquiries from producers of these items and, already, their test samples have proved out and we have shipped quantity orders for regular production. Can you use faster, easier processing "Flo-Mix" in *your* product? Write on your letterhead for sample and details now.

Always keep reclaims in your formula and always look to Buffalo for the best. U. S. Reclaiming Company, Inc., P. O. Box 365, Buffalo 5, N. Y. Trenton agent: H. M. Royal, Inc., 689 Pennington Ave., Trenton, N. J.

U.S.

70 years serving the industry solely as reclaimers

RUBBER RECLAIMING COMPANY, INC.

Now PARACRIL controls the "power" in power steering!

The "power" ***is oil.*** Keeping it in its place and working for you *can* be difficult. *Unless,* as one major manufacturer discovered, you put oil-resistant **PARACRIL**® on the job.

"O" rings made of this versatile chemical rubber are...

- completely impervious to hydraulic oils
- molded to close tolerances...non-swelling and non-shrinking to retain their close fit indefinitely
- *flexible* enough to seal at low pressures...*tough* enough to seal at extremely high pressures
- functional over a wide temperature range
- resistant to abrasion from metal parts in contact with them.

In brief, these Paracril "O" rings are *leakproof* and *lasting!*

And Paracril has proved its superiority in *hundreds* of similar applications. In automatic transmissions and other power units, in hydraulic hose, oil field equipment, and wherever oil, temperature, or friction raises a problem, Paracril supplies the answer.

Available in varying grades of oil resistance, in bale or crumb form, Paracril may be blended with other rubbers or resins, used wherever a rubberlike material is needed.

If you're not already familiar with the *many* advantages Paracril offers *you,* simply write on your letterhead to the address below.

Naugatuck Chemical

Division of United States Rubber Company

1311 ELM STREET
NAUGATUCK, CONNECTICUT

IN CANADA: NAUGATUCK CHEMICALS DIVISION • Dominion Rubber Company, Limited, Elmira, Ontario

Rubber Chemicals • Aromatics • Synthetic Rubber • Plastics • Agricultural Chemicals • Reclaimed Rubber • Latices

Inquire about Oronite

POLYBUTENES

—economical plasticizers and rubber extenders

Oronite Polybutenes are an economical rubber extender in the manufacture of a wide variety of molded or extruded rubber products. Their light color makes them specially adaptable to molded rubber products of white or pastel colors.

In addition to extending, Polybutenes plasticize the mass of rubber making it more pliable for easy milling. They also assist in milling reclaimed rubber batches while acting as an extender, and have a field of usefulness in plasticizing various synthetic rubbers.

Product characteristics

Oronite Polybutenes are clear, light colored, chemically stable liquids of moderate to high viscosity and tackiness. They have excellent aging characteristics—do not become gummy or waxy, do not harden, darken or change in any essential property over long periods of atmospheric exposure. They can be readily emulsified using standard techniques and equipment. In the emulsified form, or in their natural form, they are useful as tackifiers, plasticizers or extenders for natural or synthetic rubber latices. Complete information is available in a technical bulletin.

Write or phone the Oronite office nearest you and talk over your problem with us.

ORONITE CHEMICAL COMPANY

38 SANSOME STREET, SAN FRANCISCO 4, CALIFORNIA
30 ROCKEFELLER PLAZA, NEW YORK 20, NEW YORK
STANDARD OIL BLDG., LOS ANGELES 15, CALIFORNIA
600 S. MICHIGAN AVENUE, CHICAGO 5, ILLINOIS
MERCANTILE SECURITIES BUILDING, DALLAS 1, TEXAS

ORONITE CHEMICAL COMPANY
THE NAME TO WATCH IN CHEMICALS

2631

HARSHAW

VINYL STABILIZERS

to the vinyl plastic and coating industries

Harshaw, a pioneer and outstanding producer of metal organic chemicals, for more than 50 years, now offers broadly tested special products of controlled uniformity to assist vinyl resin processors in formulating heat and light stabilized systems efficiently, effectively and economically.

Let us know your interest in processing and stabilizing clear or pigmented vinyls in

Calendered Films, Sheets, Non-rigid Extrusions, Plastisols, Organosols, Coatings, Solutions, Rigid Extrusions.

From this list of heat and light stabilizers, we will be glad to suggest a typical stabilizing system* for the vinyl resin you process, and will furnish samples for your trial.

*Harshaw vinyl stabilizing systems comprise small amounts of two or more stabilizers, selected to give the required control against vinyl degradation.

Barium-Cadmium: 12-V-5, 128-V-5
Latest two developments of effectively modified co-precipitated laurates for high heat and light stabilization. Fine white powders.

Cadmium: 2-V-4, 2-V-7
Organic complexes for outstanding clarity. Clear pale liquids. Frequently used with barium and organic stabilizers.

Barium: 1-V-4
White powdered highly compatible barium compound. Does not bloom or plate-out of calendered stocks. Improves viscosity stability in plastisols. Frequently used with cadmium stabilizers with or without organic assistants.

Organic: 8-V-3, 8-V-5
Organic non-polymeric clear stabilizer assistants for use with barium-cadmium or cadmium stabilizers to further increase heat and light stabilizing efficiency.

Organic: 7-V-1
Organic polymeric clear liquid particularly useful in extending heat stabilization. Outstanding for organosols and solution applications. Extends many times the effectiveness of light stabilizers.

Other special products available:

Zinc 9-V-1 (organic complex) **Cadmium 2-V-8** (selected laurate)
Barium 1-V-3, & Calcium 5-V-1 (dispersible stearates)
Lead Stearate Fused 102 **Aluminum Stearate 72**

THE HARSHAW CHEMICAL CO.
1945 East 97th Street, Cleveland 6, Ohio
BRANCHES IN PRINCIPAL CITIES

For

3-DIMENSIONAL *Film*

OR SHEET • COATINGS • EXTRUSIONS • CASTINGS

Improved **HARFLEX 500®**

will make your product

STAND OUT

for RESISTANCE TO WATER EXTRACTION

EXCELLENT HEAT STABILITY

BETTER LOW TEMPERATURE FLEXIBILITY

HARDESTY **HARFLEX 500®**

Inquiries for our *improved* HARFLEX 500® are invited. Our technical staff is at your disposal.

BINNEY & SMITH CO. • Distributor to the Rubber Industry

HARCHEM

41 EAST 42nd STREET, NEW YORK 17, N. Y.

THE KEY TO HARCHEM® BETTER PLASTICS

HARDESTY CHEMICAL DIVISION
W. C. HARDESTY CO., INC.

Manufacturers of Sebacic Acid

Canadian Distributor: W. C. Hardesty Co. of Canada Ltd., 975 Lakeshore Road, New Toronto, Canada

CONSTANT

..... laboratory testing

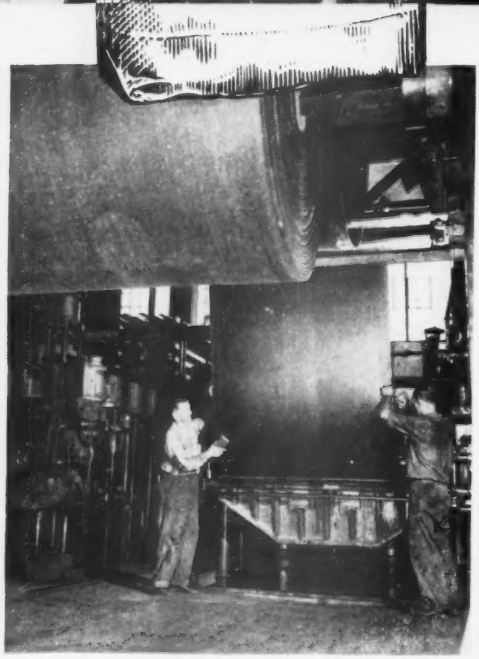
maintains Pelletex superiority as the SRF standard of the entire carbon black industry. Hundreds of tests are made daily in Cabot laboratories to assure uniformly excellent performance in all types of SRF rubber compounds. Resilience, abrasion resistance, state of cure, aging . . . these are but a few of the tests made regularly in a laboratory program which guarantees highest product quality.

Here a Cabot chemist demonstrates use of the National Bureau of Standards Strain Tester to determine tensile, modulus and elongation values of Pelletex-compounded rubber stock.

GENERAL ATLAS DIVISION of Cabot Carbon Co.
GODFREY L. CABOT, INC., 77 Franklin St., Boston 10, Mass

CABOT

PELLETEX



Top photo: A conveyor belt moves coal at the Pine Ridge Coal Company plant, Detroit, Mich.

Above: Conveyor belt is inspected as it is vulcanized in the plant of a leading rubber manufacturer.

Rubber does some things no other material will do. And it does many things no other material will do as well. The wear and abrasion resistance of rubber is increasingly utilized in mining. Here, belt conveyor systems are providing the most economical means of handling ore or coal in bulk—underground or overland.

Zinc Oxide is a basic ingredient in nearly all products made from either natural or synthetic rubber compounds. **ST. JOE lead-free ZINC OXIDES** are produced by a unique electrothermic method—a modification of the direct-from-ore, or American Process. Zinc Oxides thus produced combine most of the desirable properties of the American and French Process types.

ST. JOE ZINC OXIDES are available in grades to fit most any need, and their uniform high quality accounts for their wide use by the country's leading producers of rubber products.

ST. JOSEPH LEAD CO.

Lead Free

250 PARK AVE., NEW YORK 17

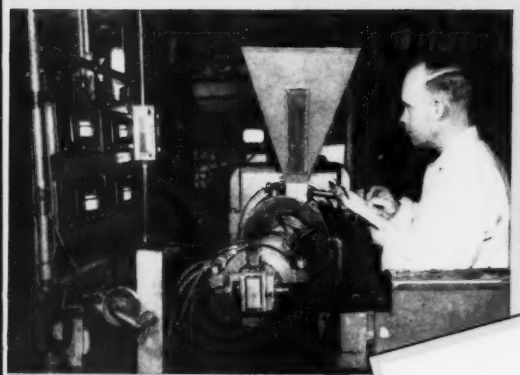
Plant & Laboratory: Monaca (Josephtown) Pa.

Cabflex Di-OP

FOR WIRE INSULATION COMPOUNDS

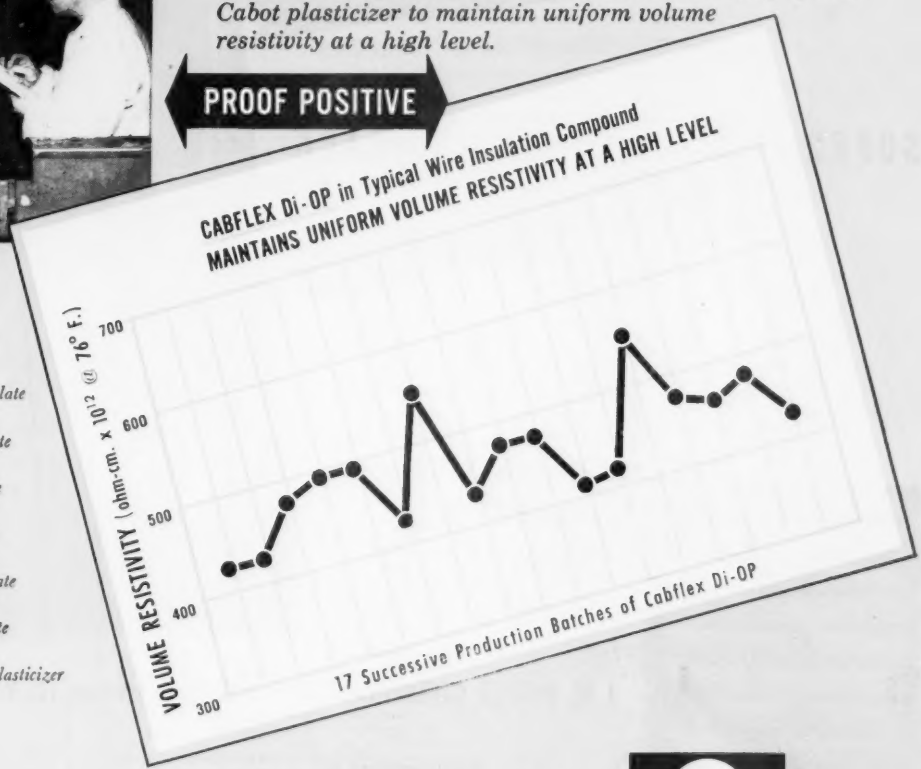
Tested and proved in laboratory and in plant, Cabflex Di-OP imparts consistently uniform, highest quality electrical properties to vinyl wire and cable compounds.

The results of laboratory evaluation of 17 successive production batches of Cabflex Di-OP in a typical wire insulation compound prove beyond doubt the ability of this Cabot plasticizer to maintain uniform volume resistivity at a high level.



Courtesy of The Rex Corporation, West Acton, Mass.

PROOF POSITIVE



- **Cabflex Di-OP** *di-iso-octyl phthalate*
- **Cabflex Di-OA** *di-iso-octyl adipate*
- **Cabflex DDP** *di-decyl phthalate*
- **Cabflex DDA** *di-decyl adipate*
- **Cabflex Di-BA** *di-iso-butyl adipate*
- **Cabflex Di-OZ** *di-iso-octyl azelate*
- **Cabol 100** *hydrocarbon oil plasticizer*

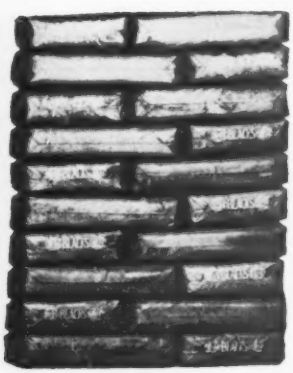
Plasticizer Division **GODFREY L. CABOT, INC.**
77 FRANKLIN ST., BOSTON 10, MASS.

CABOT

NOW! FROM THE PIONEERS OF SAF

AROMEX 125

SUPER ABRASION FURNACE BLACK



COMMERCIAL
QUANTITIES
AVAILABLE

J. M. HUBER CORPORATION • 100 Park Avenue, New York 17, N. Y. HUBER

Manufacturers of
FURNACE BLACK
CHANNEL BLACK
RUBBER CLAYS
RUBBER CHEMICALS

RUBBER AGE

One of the World's Outstanding Rubber Journals

VOLUME 74
NUMBER 2

M. E. LERNER
Editor

B. J. KOTSHER
News Editor

S. A. MOSCATO
Production Manager

ELLA MAY DARRIN
Circulation Manager

CHARLES T. JANSEN
Advertising Manager

PETER P. PINTO
General Manager

CONTENTS FOR NOVEMBER, 1953

Use of Synthetic Rubber in Passenger Car Tires—*By I. J. Sjothun, P. S. Greer and S. N. Rhodes* 231

Products Volatilized from a Channel and a Furnace Black on Heating to 1000° C.—*By S. L. Madorsky, V. E. Hart and S. Straus* 238

The Reinforcement of Butyl with Carbon Black. Part II—Specific Action of Surface Oxygen—*By R. L. Zapp and A. M. Gessler* 244

Hewitt Rubber's New Vulcanizing Department—*By Ethelyn M. Weller* 252

●

REGULAR DEPARTMENTS

Book Reviews	298	Los Angeles News	278
Canadian News	280	Names in the News	272
Chemical Prices	*	New Goods	286
Classified Ads	314	New Equipment	292
Coming Events	262	Obituaries	284
Editorials	254	Rubber, Cotton Markets	304
Financial News	275	Statistics	306

* Appears every other month

●

MICROFILMS

Microfilm copies of complete volumes of RUBBER AGE are available from University Microfilms, 313 N. First St., Ann Arbor, Mich.

Also Publishers of:

RUBBER RED BOOK
Directory of the Rubber Industry
Published Biennially

ANNUAL BIBLIOGRAPHIES OF RUBBER LITERATURE
Compiled by D. E. Cable, Ph.D.
For Years 1935-1939

LATEX IN INDUSTRY
By Royce J. Noble, Ph.D.
Text Book on Latex

LATEX AND ITS INDUSTRIAL APPLICATIONS (Vol. I)
(Out of Print)
By Frederick Marchionna
Bibliography of latex patents and literature to June, 1932.

LATEX AND RUBBER DERIVATIVES AND THEIR INDUSTRIAL APPLICATIONS (Vols. II & III)
By Frederick Marchionna
Bibliography of latex patents and literature from June, 1932, to January, 1937; rubber derivatives to January, 1937.

Published on the 15th of each month by
PALMERTON PUBLISHING COMPANY, INC.

Printing Office,
East Stroudsburg, Pa.

Editorial and Advertising Offices,
250 West 57th St., New York 19, N. Y.

New England Representative—F. ROYAL CAREY, P.O. Box 133, Providence, R.I.

Midwestern Representative—JOHN P. O'KEEFE, 549 West Washington St., Chicago 6, Ill. Phone: Central 6-0545

News Correspondents—CARL S. HOGLUND, 5107 Telegraph Road, Los Angeles 22, Calif.—Phone: ANgelus 2-0117. PHIL GLANZER, Tivoli Theatre Bldg., Toronto 1, Canada.

Entered as Second Class Matter, October 20, 1933, at the Post Office at East Stroudsburg, Pa., under Act of March 3, 1879. Subscription Rates: Domestic, $5.00 a year; Canada, $5.50; Foreign, $6.00. Single copies up to 3 months old, 50 cents; over 3 months old, 75 cents. Telephones: COlumbus 5-2923, 5-2924.

Contents Copyrighted 1953 by the Palmerton Publishing Company, Inc.

Indexed in Industrial Arts Index and Engineering Index. OFFICERS: P. L. Palmerton, President; E. D. Osborn, Vice-President and Secretary; Peter P. Pinto, Treasurer.

The superflexing Antioxidant that put "SUPER" in SUPERior

HEAVY-SERVICE TRUCK TREADS— De Mattia Flex Cracking Data	NO FLEXAMINE 306,000 Kilocycles	1.0 part FLEXAMINE 612,000 Kilocycles
Tensile retained after aging 96 hours in Oxygen Bomb	11%	60%
Tensile retained after aging 96 hours in hot air at 212° F.	51%	62%

FLEXAMINE—The powder blend that disperses rapidly and completely to assure maximum protection in both synthetic and natural rubber.

Use Flexamine in Molded Soles, V-belts, Conveyor Belts, and general Mechanical Goods to provide excellent resistance against heat, as well as against oxidation and flexing fatigue.

Use Flexamine in Wire Insulation and Linesmen's Gloves and Aprons to inhibit deterioration caused by oxidizing action of copper and manganese.

Detailed information on Flexamine appears in a new Compounding Research Report No. 26. Write on your letterhead to address below.

PROCESS — ACCELERATE — PROTECT with NAUGATUCK CHEMICALS

Naugatuck Chemical

1011 ELM ST.,
NAUGATUCK, CONNECTICUT

Division of United States Rubber Company

IN CANADA: NAUGATUCK CHEMICALS DIVISION • Dominion Rubber Company, Limited, Elmira, Ontario

Rubber Chemicals • Aromatics • Synthetic Rubber • Plastics • Agricultural Chemicals • Reclaimed Rubber • Latices

RUBBER AGE

Vol. 74, No. 2 NOVEMBER, 1953

Use of Synthetic Rubber in Passenger Car Tires

By I. J. SJOTHUN*, P. S. GREER and S. N. RHODES

Reconstruction Finance Corporation, Office of Synthetic Rubber, Washington, D.C.

THE synthetic rubber industry came into existence during World War II when enemy control of southeast Asia cut off the principal sources of natural rubber. The manufacture of butadiene-styrene copolymers, based on research which had been carried on for more than a decade *(2, 15)*, was begun as a war emergency to prevent the collapse of our national transportation system *(3)*. Polymers selected for production not only had to provide reasonably adequate performance, but also had to meet the requirements for large scale production and process satisfactorily on existing tire factory equipment. As soon as production was underway, synthetic rubber was substituted almost entirely for natural rubber in such uses ar passenger car and agricultural farm service tires.

The major consumption of natural rubber during World War II was in truck tires. The best large truck tires of high synthetic rubber content which the industry has been able to build are not acceptable for normal commercial highway service *(13)* as shown by Government Tire Test Fleet results.

Post-War Pattern on Passenger Tires

With the end of hostilities, the trend was toward increased consumption of natural rubber and only minimum use of synthetic rubber. It was soon realized, however, that in passenger car tires the hot rubber (GR-S polymerized at 122°F.) treads were only slightly inferior to natural rubber treads for tread-wear resistance and were greatly superior for tread-crack resistance. Furthermore, with the advent of cold rubber (GR-S polymerized at 41°F.) and HAF carbon black in 1948, the tread-wear resistance of synthetic rubber treads was improved far beyond that of natural rubber treads (Figure 1). On 170 tests at the Government Fleet cold rubber treads had an average tread-wear rating of 123 compared with natural rubber treads at par (100). Today synthetic treads on passenger car tires are unchallenged for performance, and the change from natural to synthetic rubber which was originally a war-time necessity is now essentially irreversible.

The development of satisfactory synthetic rubber also resulted in large savings both to the producer who was able to use cold rubber when hot rubber was inadequate for many uses and natural rubber was high in price (above 60 cents during 1951), and to the consumer who obtains 10 to 20% more miles from his passenger car tires. Based on a conservative 10% improvement in mileage for the 75 million passenger car tires produced, a Federal Supply Service price of $13.57 for a 6.70-15 tire, and substantially equal prices for natural and synthetic rubber tires, a savings of $100 million was realized by consumers from the use of cold rubber in 1952. Kuebler *(6)* estimated that cold rubber saved the nation $700 million in increased tire mileage in the first five

* Present address: Firestone Tire & Rubber Co., Akron, Ohio.

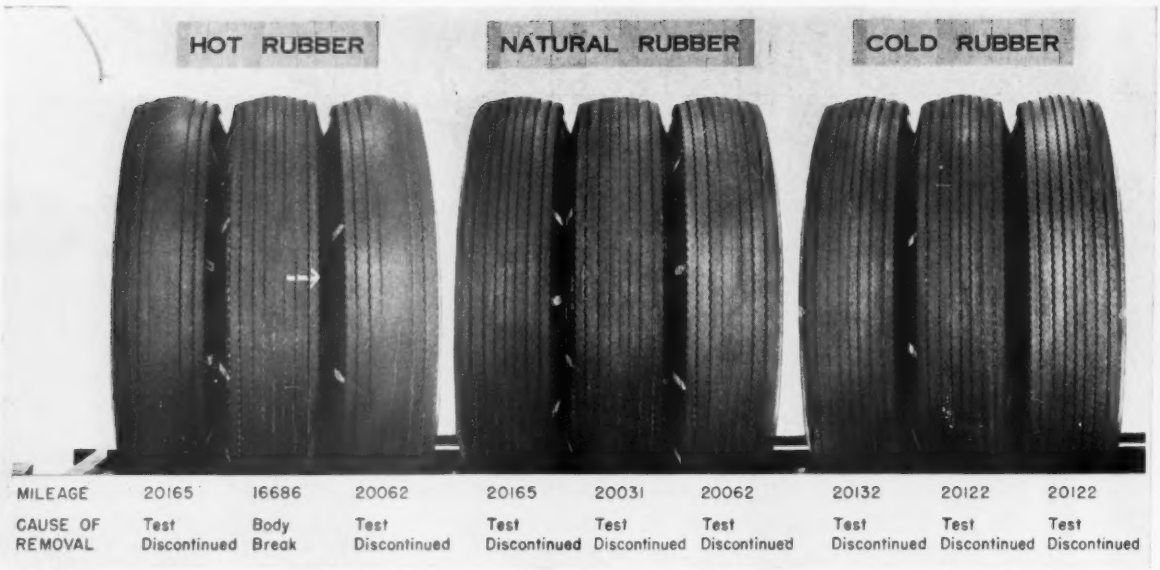

HOT RUBBER
NATURAL RUBBER
COLD RUBBER
MILEAGE 20165 16686 20062 20165 20031 20062 20132 20122 20122
CAUSE OF REMOVAL Test Discontinued Body Break Test Discontinued Test Discontinued Test Discontinued Test Discontinued Test Discontinued Test Discontinued Test Discontinued Test Discontinued

FIG. 1—The treads of these passenger car tires contain hot, natural and cold rubber, respectively, and show the superiority of cold rubber for tread-wear resistance as indicated by the amount of tread pattern remaining. These tires are representative of the average results obtained at the Government Tire Test Fleet.

years it has been available—more than the cost of building the entire United States synthetic plant system.

In 1952 forty per cent of the total new rubber hydrocarbon used in the United States went into passenger car and farm service tires *(10)*. Although Government regulations did not require the use of synthetic rubber in these tires *(7)* during the major part of the year, more than ¾ of this hydrocarbon was synthetic rubber *(10)*. This indicates that superior service is obtained even when such tires are made almost wholly from synthetic rubber. The term "synthetic rubber" as used herein refers to cold rubber when used in the treads and otherwise to either hot or cold rubber unless specified.

Advantages of Synthetic Treads

The rubber hydrocarbon used in passenger car tires can be roughly broken down as follows:

Tread	30-50%
Sidewall	35-15%
Carcass	35%

Synthetic rubber treads are better than natural rubber treads for general performance in passenger car tires because of their greater resistance to tread-crack initiation and tread-wear. Subsequent to the initiation, synthetic rubber treads are poorer for crack- and cut-growth resistance; this is not a major problem in passenger car tires as the heat generation and carcass growth are relatively low.

Testing season has a marked effect on the relative wear of natural and synthetic rubber treads. In nine comparisons using passenger car tires (including both hot and cold rubber treads) from the same manufacturer the results are as shown in Table I. The data indicate that compared with natural rubber treads, synthetic rubber treads wear 24% better in the summer than in the winter. Biard and Svetlik reported recently *(1)* that synthetic and natural rubber treads are equal in resistance to abrasion under mild conditions of testing, but that synthetic rubber treads are vastly superior under severe conditions. If this premise is true, synthetic rubber treads should not only be superior for tread-wear resistance in the summer, but also the superiority should increase as the operating speed and/or load is increased.

Since synthetic rubber treads outperform natural rubber treads in passenger car tires, 30 to 50% of the hydrocarbon used in these tires will continue to be synthetic rubber even at a substantial price disadvantage. This was emphasized by Niemeyer, Reahard and Riehl *(11)* in a panel discussion of the Akron Rubber Group on January 30, 1953.

TABLE I—EFFECT OF TESTING SEASON ON THE RELATIVE WEAR OF NATURAL AND SYNTHETIC RUBBER TREADS

	Summer Tests	Winter Tests
Natural Rubber	100	100
Synthetic Rubber	124	100
Ambient Temperature	81°F.	57°F.

Sidewall and Carcass Compounds

Few comparative data have been obtained at the Government Fleet on the performance of natural and synthetic rubber sidewall compounds. Synthetic rubber sidewalls, in general, have given satisfactory performance. Inasmuch as natural rubber sidewalls also have been adequate for performance, it appears that the decision as to whether natural or synthetic rubber is used in the 15 to 35% of the hydrocarbon required for passenger car tire sidewalls is determined to a large extent by economic considerations.

Few carcass tests have been run at the Government Fleet in passenger car sizes because only a limited number of failures is obtained irrespective of whether the carcass compounds contain synthetic or natural rubber.

As carcass failures are required to obtain comparative data, it has been concluded that thorough carcass polymer evaluations have not been forthcoming in passenger car tires at the Government Fleet. It has further been concluded that since few failures occur the synthetic carcasses have been adequate for performance. This is further confirmed by Niemeyer *(11)* who stated, "We know that at the same reclaim levels as used in natural rubber, 100% GR-S passenger carcass compounds will give entirely adequate service, particularly for the smaller size large volume passenger tires."

Approximately 35% of the rubber hydrocarbon in passenger car tires is required by the carcass. In carcass compounds, blends of natural with up to 50 to 70% synthetic rubber, as with all natural rubber, can be built into tires without cementing the various body plies with a natural rubber cement. Since the performance levels of the blend and the 100% natural rubber carcass compounds are comparable, the use of 15 to 20% of the total rubber hydrocarbon as synthetic rubber in rubber blend carcasses is entirely an economic consideration and price dictates to a great degree the usage of each.

The use of 100% synthetic rubber carcass compounds requires the cementing of the plies with a natural rubber cement. Since the cementing operation involves added cost, it is estimated that synthetic rubber must be 5 to 10 cents per pound cheaper than natural rubber to justify the change to 100% synthetic rubber carcass compounds. Under these circumstances essentially 100% synthetic tires would be produced, particularly in the volume sizes. This is further confirmed by Reahard *(11)* who stated, "In the smaller first-quality and second and third line passenger tires, GR-S would replace approximately 70% of the crude rubber in the carcass compounds when the price differential was 4 to 5 cents in favor of GR-S. In small first-quality and second and third line tires, the GR-S would replace all the natural rubber in passenger tire carcass when the price differential was from 8 to 10 cents a pound in favor of GR-S."

Passenger car tires can be built with as low as 1.25% of the rubber hydrocarbon represented by natural rubber in the form of cements. This is demonstrated by the War Production Board (WPB) R-1 Order dated May 30, 1945, as well as earlier WPB orders. It is likely that the later specification of 2.5% maximum natural rubber per the WPB R-1 Order dated August 15, 1946 is more practical because a limitation of 1.25% natural rubber requires the cementing of the bead components as well as the body plies.

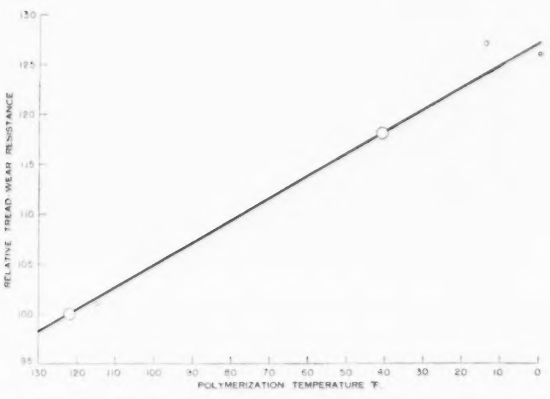


FIG. 2—Effect of polymerization temperature on tread-wear resistance. (Note: Size of point indicates number of tests).

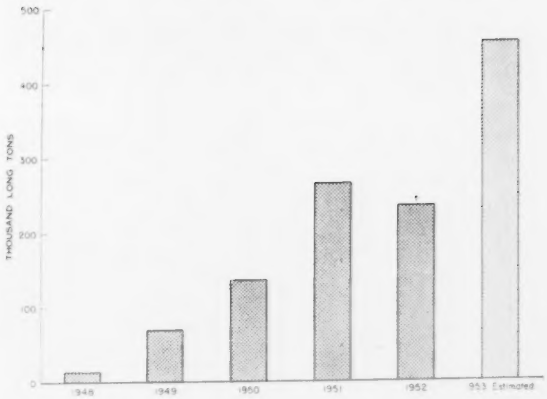


FIG. 3—Cold rubber production. (Note: One plant in 1952 operated at less than half capacity due to damage caused by an explosion).

To illustrate the favorable position of synthetic rubber in passenger car tires, it was considered worth while to summarize the Government Tire Test Fleet results, to indicate the degree of accuracy of the results obtained, and the procedure by which the tests were run.

Experimental pilot plant and production polymers are normally tested in whole tires for which the compounds are processed on standard factory equipment. Special polymers available only in limited quantities are normally tested on multiple (2-way or 3-way) tread tires. These treads are usually press-formed in the laboratory and can be made from as little as 5 to 10 pounds of polymer. This procedure provides a suitable means of obtaining a preliminary evaluation by conducting normal tire tests on promising developments while they are still in the bottle polymerization or small pilot plant reactor stage.

Predominant Factors in Tread-Wear Resistance

After the initial use of 122°F. synthetic rubber, three predominant factors have been applied to improve tread-wear resistance of passenger car tire treads. These three factors are:

1. Reduction in polymerization temperature.
2. Use of HAF black.
3. Higher Mooney viscosity.

The effect of decreased polymerization temperature is shown in Figure 2. As the polymerization temperature is decreased, tread-wear resistance is generally increased. Similar results were reported by White *(11)* from early Government Fleet results. A decrease of 81°F. in polymerization temperature is accompanied by a substantial improvement in the polymer. Compared with hot rubber at par (100) cold rubber has a tread-wear rating of 116 on 171 passenger car tests and 123 on 49 truck tests run during the last 7 years. Cold rubber, therefore, has an average rating of 118 compared with hot rubber on all tests. Since Figure 2 indicates that within the range of 0°F. and 122°F. the temperature effect is essentially a linear function, the results can be summarized by stating that for every 4.5°F. decrease in polymerization temperature there is a corresponding increase of 1% in tread-wear resistance.

The improvement in tread-wear resistance with reduction in polymerization temperature is also accompanied by a corresponding improvement in cut-growth resis-

TABLE II—RELATIVE RATINGS OF CARBON BLACKS

EPC Black	110
HAF Black	111 (49 tests)
SAF Black*	117 (7 tests)

* Predominantly commercial grades

tance. On 16 tests the cut growth in cold rubber treads was only about 43% of that in hot rubber treads.

The superiority of cold rubber is further manifested by consumer demand for the product and the resultant increase in cold rubber production. The annual production of cold rubber from 1948, including the estimated production for 1953, is shown graphically in Figure 3. In July, 1951, cold rubber amounted to approximately 38% of total production but considering that this did not fill the demand it was necessary for the National Production Authority to place limitations on its sale. By July, 1952, the capacity for producing cold rubber was approximately 50% of production and the restrictions on the purchase of cold rubber were removed *(8)*. Today, approximately 75% of the total production capacity of the synthetic rubber plants is geared to the production of cold rubber, and it is estimated that over 450,000 long tons will be produced during 1953.

The ratings for natural and synthetic rubber shown in Table I do not necessarily represent a true relationship between natural rubber and cold rubber as such, because the carbon black used plays an important role in determining the tread-wear resistance. In most cases the carbon black used with the natural rubber control was not reported but was probably channel black. However, in spite of the possible change in carbon black, the fact that a number of the treads in Table I were made from 122° F. polymers supports the conclusion relating to the superiority of cold rubber treads over natural rubber treads.

Based on passenger car and truck tread-wear tests run at the Government Fleet, the relative ratings of 3 types of carbon black are as shown in Table II. Mandel et al *(9)* reported that the influence of type of rubber and type of carbon black on tread-wear are mutually independent. The figures reported in Table II show that the tread-wear resistance, without regard to polymer, was improved an average of 11% through the use of HAF black and indicate that synthetic treads potentially can be further improved for tread-wear resistance through

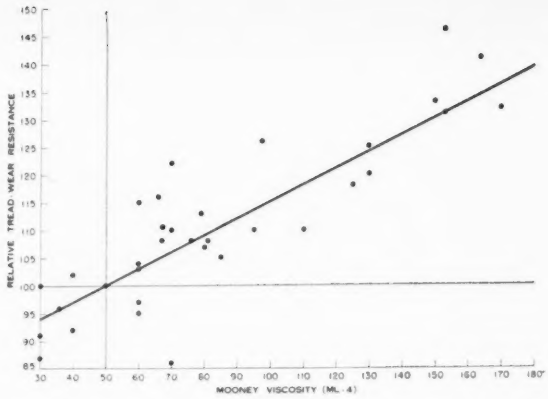


FIG. 4—Effect of Mooney viscosity on tread-wear resistance.

the use of SAF black although, perhaps, at some sacrifice in tread-crack resistance.

The figures relative to polymer and HAF black concur with those reported by Mandel et al *(9)* and by Sjothun and Cole *(12)* as shown in Tables III and IV, respectively. The results of early tests run at the Government Fleet are the basis for Table III, whereas Table IV is based on both early Government Fleet and private tests. The figures also concur with the results reported by other investigators *(5, 11)*. As stated earlier, cold rubber HAF treads have a wear rating of 123 as compared with standard natural rubber treads. If this cold rubber rating is corrected for HAF black then the polymer relationship is as shown in Table V.

The effect of Mooney viscosity (ML-4, 212°F.) on tread-wear resistance is shown graphically in Figure 4. This indicates that the relationship is probably a linear function and that an increase of 3.3 points in Mooney viscosity is accompanied by an average increase of 1% in tread-wear resistance. As indicated by Figure 4, the number of tests on high Mooney viscosity polymers is rather impressive; however, these polymers can not be processed satisfactorily on existing tire factory equipment. A number of methods were tried in the attempt to convert these polymers into a more processible form. For experimental tires it was necessary to use press-formed treads in many cases.

Progress with Oil-Masterbatch Rubber

In August, 1946, a Government Fleet project was initiated to evaluate a 97 ML-4 104°F. polymer. The treads compounded with this polymer and 17 parts of softener had a tread-wear rating of 126 compared with the standard GR-S control. The first real progress in the use of high Mooney viscosity cold rubber (41°F.) was made in a Government Fleet project initiated in June, 1947. A 105 ML-4 cold rubber was compounded with 20 parts

TABLE III — RESULTS OF EARLY TESTS ON CARBON BLACK RUN BY THE GOVERNMENT FLEET

Effect of Polymer (same black)		Effect of Black (same polymer)	
GR-S-10 (hot rubber)	100	EPC Black	100
Natural Rubber	112	HAF Black	114
Cold Rubber	119		

TABLE IV—RESULTS OF EARLY TESTS CONDUCTED BY BOTH THE GOVERNMENT FLEET AND PRIVATE COMPANIES

	Hot Rubber	Cold Rubber
EPC Black	100	115
HAF Black	122	138

TABLE V—POLYMER RELATIONSHIP CORRECTED FOR HAF BLACK

Hot Rubber (122°F.)	100
Natural Rubber	107
Cold Rubber (41°F.)	118

TABLE VI—TREAD BASE TEMPERATURES

Tread Polymer or Masterbatch	Temperature			
	Winter Tests		Summer Tests	
	Tread °F.	Ambient °F.	Tread °F.	Ambient °F.
Oil-Masterbatch ..	148	67	177	91
Hot Rubber	158	67	173	90
Cold Rubber	153	67	175	91
Natural Rubber ..	148	73	163	90

of softener and had a tread-wear rating of 102, as compared with the 45 ML-4 control with 2 parts of softener rated at 100. A number of such tests had been reported in the literature, as summarized by D'Ianni, Hoesly and Greer *(4)*, in which oil was used to improve the processibility, to extend the hydrocarbon available or to improve the cut-growth characteristics. However, the high Mooney viscosity polymers were difficult to process prior to the incorporation of the processing oil. It was logical that this technique should be developed to produce oil-masterbatch rubber. This addition of rubber processing oils to high Mooney viscosity synthetic rubber latex before coagulation gives a product which can be processed on standard tire factory equipment.

Oil-masterbatch rubber appears potentially satisfactory for tread use even though oil-masterbatch treads run at the Government Fleet to date have been more subject to open tread splices and tread separations than those of the parent polymer. These characteristics are relatively unaffected by change in the type of oil, but worsen with increased oil content. In passenger car tires, oil-masterbatch treads have had better tread-wear and tread-crack resistance than cold rubber treads, but the tread-wear ratings have varied over a wide range. Oil-masterbatches containing 25 parts of oil have an average tread-wear rating of 105 on 40 tests; those containing 37½ parts of oil have an average rating of 100 on 12 tests. Cut growth was reduced to less than one-half of that developed in the parent polymer treads.

Oil-masterbatch rubber affords lower cost rubber compounds, greater production from a given amount of monomer, and improved hysteresis as measured in the laboratory. The oil is essential for processing the polymer and although it affects the tread-wear resistance adversely, *per se*, compensations can be made by adjustments in carbon black loading. Fortunately, the improvement obtained from increased Mooney viscosity is greater than the loss in tread-wear resistance due to increased softener content so that the final product gives superior performance. The rubber supply during the first half of 1953 was extended approximately 43 million pounds, or about 5.3% of the net weight of the polymer. At the present rate of consumption the combined savings to manufacturer and consumer from the use of oil-masterbatch rubber conservatively will exceed $18 million per year.

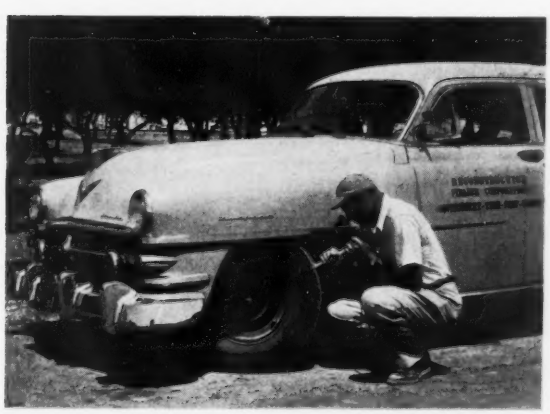


FIG. 5—Tread temperatures are measured in the shoulder rib with an injection thermocouple immediately after the car comes to a stop. Temperature readings are normally completed within 1½ minutes on regular passenger car tires and within 3 minutes on multiple tread tires. The higher reading obtained on two injections is recorded as the tread temperature.

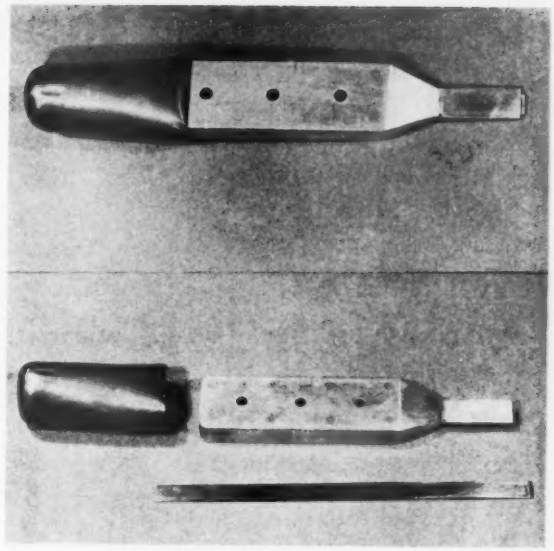


FIG. 6—The precutting knife has a removable blade to facilitate sharpening and to provide a convenient means of depth change and control.

Tread base temperatures developed in oil-masterbatch, hot, cold and natural rubber treads are shown in Table VI. The temperatures developed in the tread base are essentially equal for all synthetic treads and are about 12°F. higher than the corresponding natural rubber tread temperatures. It also appears that in passenger car tires the increase in tire operating temperature from winter to summer is the same as the increase in ambient temperature.

Testing Methods Employed

The value of fleet tests is in part determined by the accuracy of testing. At the Government Fleet, tread-wear ratings are developed from the skid loss as measured in the center groove(s). Based on tire performance during the past two years, the tread-wear ratings for the various groups tested have a standard deviation of 3.4%. Eighty-one per cent of the tread-wear ratings of the various groups are within ±5% of the average for the group.

Tread base temperatures (Figure 5) are measured by an injection thermocouple* *(13)* in the shoulder at a

* The injection thermocouple was developed by the Government Laboratories, University of Akron, and is described in a paper entitled "Tire Temperature Measurement at the Government Tire Test Fleet", by V. J. Horning, which will be published in the December, 1953, issue of RUBBER AGE.

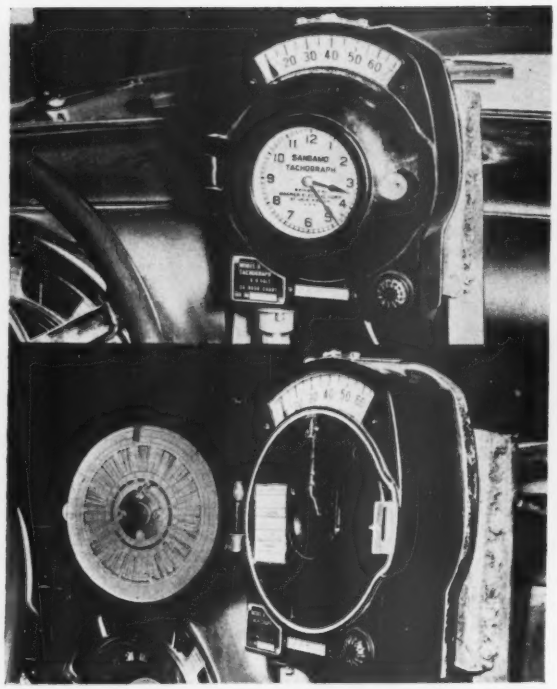


FIG. 7—The tachograph provides a permanent chart record, with respect to time, of the running of the motor, the speed of the vehicle and the miles traveled during a 24-hour period. The instrument records the time at which the chart is installed and the front closed. It also records each time the instrument is opened, thereby providing a check upon the operator.

depth of 0.6 inch on 8.00-15 tires. It has been further determined that tread base temperature measurements have a standard deviation of 3.2°F. and that approximately 87% of the temperatures obtained are within ±4°F. of the mean temperature.

To obtain an indication of the resistance of passenger car tires to cracking, the treads are normally precut with the special precutting knife shown in Figure 6. In service the precuts grow in length. The cut-growth results appear to be significant to about ±50% growth. Precut growth has a standard deviation of 44% and the cut growth of approximately 88% of the tires of the various groups falls within ±50% of the mean cut growth for the respective groups.

The above results were obtained from tests conducted on roads near San Antonio, Texas, on Chrysler New Yorker cars using 8.00-15 tires. These tires were run on 6-L rims with an overload of 20% and an inflation pressure of 24 psi based on Tire and Rim Association recommendations. The tire load is approximately 1,395 pounds and is equivalent to four passengers with an average weight of 200 pounds, plus 150 pounds of baggage.

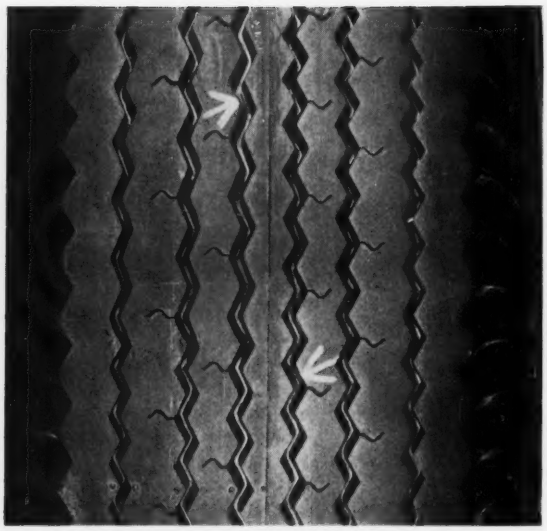


FIG. 8—A typical precut multiple tread 8.00-15 passenger car tire. The precuts do not penetrate to the cord body but do extend through approximately one-half the depth of the tread base. Tires are mounted and inflated prior to precutting.

A speed of 60 mph is maintained insofar as possible. Rate of wear increases with speed; therefore, the cars are operated at the maximum speed permitted by Texas law. Tachographs (Figure 7) are mounted on each vehicle to obtain a record, with respect to time, of the speed, mileage and other phases of the operation. The tires are tested on 100% pavement.

Synthetic rubber treads are very resistant to tread-crack initiation, especially in passenger car tires where the heat generation and body growth are low. In order to evaluate the relative cut-growth resistance of experimental polymers, it is necessary to precut the treads. Normally, the treads are precut with 10 cuts alternately in each of two grooves on opposite sides of the center rib or groove. Each cut is 0.3-inch long and 0.06-inch deep. On multiple tread tires (2-way and 3-way), treads are precut as above except that four cuts are made in the two specified grooves in each tread section (Figure 8).

On carcass tests, the treads are not pre-cut. Instead, the inflation pressure of the tires is reduced to 20 psi at approximately 12,000 miles because reduced inflation pressure promotes carcass failures. However, reduced inflation pressure also increases the rate of tread wear.

TABLE VII—DAILY SEQUENCE OF WHEEL POSITIONS ON LEFT AND RIGHT AXLES OF TWO VEHICLES

Tire	Vehicle	Day 1st	2nd	3rd	4th	5th	6th
		Left	Right		Left	Right	
A-1	1	Front	Rear	Inspection	Rear	Front	Measurement and Inspection
B-1	1	Rear	Front	Inspection	Front	Rear	Measurement and Inspection
C-1	2	Front	Rear	Inspection	Rear	Front	Measurement and Inspection
D-1	2	Rear	Front	Inspection	Front	Rear	Measurement and Inspection

Tires are applied and rotated on the various wheel positions in a "figure eight" manner as shown in Figure 9. If a project contains four specifications A, B, C, and D, three tires (A-1, A-2, and A-3, etc.) are normally run to each group. These tires are divided into three sub-groups, each of which is comprised of one tire from each of specifications A, B, C, and D. Each sub-group as a unit is applied, rotated, and moved to stock for measurement. Table VII shows the daily sequence of wheel positions on left and right axles of two vehicles and the period of measurement for the four tires of one such sub-group.

Every twenty-four hours the tires are moved to the appropriate positions (which reverses the direction of tire rotation) or removed to the stockroom without removal from the wheels on which they were originally mounted. Following the measurements on the first vehicle a similar cycle of application, rotation and measurement is repeated using the second test vehicle. This procedure of alternating vehicles is followed for the duration of the test. While tires are on test, the inflation pressure is checked approximately every 60 miles to insure that no slow leaks have developed which would cause under-recommended inflation pressure. If the air pressure is below the specification, the inflation is corrected, but increased inflation pressure resulting from service is not adjusted downward.

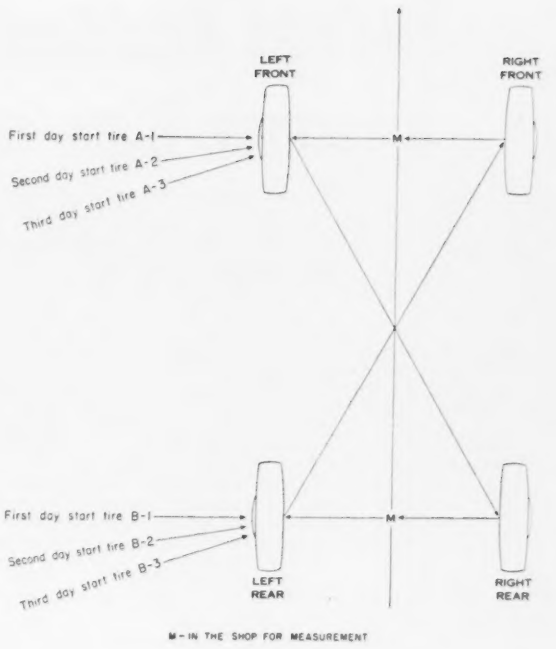


FIG. 9—Method of tire rotation.

Summary

Cold rubber outperforms natural rubber in passenger car tire treads. A decrease of 4.5°F. in polymerization temperature results in 1% improvement in tread-wear resistance. An increase of 3.3 points in Mooney viscosity also results in 1% improvement in tread-wear resistance. The tread-wear resistance is further improved by the use of HAF black. Oil-masterbatches provide improved tread-wear and tread-crack resistance but to date have been more subject to open splices and tread separations. The use of synthetic rubber in passenger car tire sidewall and carcass compounds is primarily an economic consideration.

ACKNOWLEDGMENT

This paper was prepared under the sponsorship of the Reconstruction Finance Corporation, Office of Synthetic Rubber. The authors wish to acknowledge the contributions of the Government Tire Test Fleet, its Manager, E. C. Read, and Technical Supervisor, B. C. Dial, in obtaining the tire data and analyzing the test results.

LITERATURE REFERENCES

(1) Biard, C. C., and Svetlik, J. F., *I. R. W.*, **127,** 363 (1952).
(2) Breuer, F. W., *R. A. (N.Y.)*, **54,** 229 (1943).
(3) Conant, J. B., Compton, K. T., and Baruch, B. M., "Report of the Rubber Survey Committee," Sept. 10, 1942.
(4) D'Ianni, J. D., Hoesly, J. J., and Greer, P. S., *R. A. (N. Y.)*, **69,** 317 (1951).
(5) Fielding, J. H., *Ind. Eng. Chem.*, **41,** 1560 (1949).
(6) Kuebler, J. F., *Akron Beacon Journal*, Sept. 5, 1952.
(7) M-2 Order, NPA, U. S. Dept. of Commerce, April 21, 1952.
(8) M-2 Order, NPA, U. S. Dept. of Commerce, Aug. 29, 1952.
(9) Mandel, J., Steel, M. N., and Stiehler, R. D., *Ind. Eng. Chem.*, **43,** 2001 (1951).
(10) Private Communication, Rubber Division, NPA, U. S. Dept. of Commerce, March 17, 1953.
(11) *R. A. (N.Y.)*, **76,** 73 (1953).
(12) Sjothun, I. J., and Cole, O. D., *Ind. Eng. Chem.*, **41,** 1564 (1949).
(13) Sjothun, I. J., and Greer, P. S., *R. A. (N.Y.)*, **74,** 77 (1953).
(14) White, L. M., *Ind. Eng. Chem.*, **41,** 1554 (1949).
(15) Wood, L. A., U. S. Dept. of Commerce, Circular of the National Bureau of Standards C-427 (issued June 25, 1940).

Use of the new **Fisher/Tag Improved Cloud and Pour Point Tester** developed by the Fisher Scientific Co., Pittsburgh, Penna., is said to bring greater stability and convenience to the performance of critical cold-weather oil tests. As many as four samples may be tested simultaneously, at temperatures as low as −90° F.

An instrument capable of measuring the true mass rate of flow of anything that will flow or fall through a pipe has been announced by the Control Engineering Corp., Norwood, Mass. Called the **Mass Flowmeter,** the unit is said to be unique in that it actually responds to pounds and is totally insensitive to volume.

New models of **Baldwin 60-H and 12-H** testing machines have been announced by the Baldwin-Lima-Hamilton Corp., Philadelphia, Penna. These universal testing machines of 60,000 and 12,000 pound capacity, respectively, are said to retain the advantages of the larger Baldwin machines provided in a low-cost testing machine.

A new series of panel mounting precision potentiometers, **Dekapot Model DP-211,** have been introduced by the Brown Electro-Measurement Corp., Portland, Ore. These instruments are said to achieve a new order of accuracy in potentiometers with linearity to better than ± 0.01% and total resistance to better than ± 0.05%.

Products Volatilized from a Channel and a Furnace Black on Heating to 1000° C.

By S. L. MADORSKY, V. E. HART and S. STRAUS

National Bureau of Standards, U. S. Department of Commerce, Washington 25, D.C.

It has been reported that tires containing furnace black wear 10 to 20 percent longer than those containing channel black. In order to throw some possible light on this difference in the behavior of the two blacks, samples of each were first pre-evacuated for 22 hours at room temperature and then heated in a vacuum to a maximum temperature of 1000°C. The volatile products were collected, fractionated and the lighter fractions analyzed in the mass spectrometer. It was found that the volatiles obtained below 500° consisted mainly of water, carbon dioxide and carbon monoxide while those obtained in the temperature interval 500° to 1000° consisted mainly of hydrogen, carbon dioxide and carbon monoxide. It is suggested that the hydrogen results mainly from a reaction of water with carbon. On the whole, channel black yields twice as much volatiles as furnace black. It is concluded that the larger amount of volatiles, particularly water, adsorbed on the surface of the channel black particles, may prevent a good adhesion between the rubber and the carbon, and thus be responsible for the lower tread-wear properties of tires. Some other interesting conclusions have also been reached.

IN a study of tread-wear of tires, reported by Mandel, Steel and Stiehler *(1)*, it was found that rubber treads compounded with oil-furnace black wore 10 to 20 percent longer than when compounded with channel black. The present work was undertaken with the object of looking for differences in volatile products in the two types of carbon black, which might account for the difference in their behavior. Samples of oil-furnace and channel blacks were pyrolyzed at temperatures up to 1000°C., and the more volatile products analyzed by the mass spectrometer. Pyrolysis was carried out in a vacuum in order to obtain a more complete desorption of the volatile matter from the black and to eliminate any possible reaction of the samples or their volatile products with air.

Experimental Procedure

The furnace and channel blacks were received in the laboratory in tightly closed bottles. Samples weighing 2 to 2.5 grams were first evacuated at room temperature for 94 hours in an apparatus at about 10^{-6} mm Hg. The losses which took place during this pre-evacuation are plotted against time in Figure 1. As seen from this figure, both curves begin to level off after about 70 hours of pre-evacuation. After 94 hours, total losses for furnace black and channel black were about 1.0 and 2.3 percent, respectively. However, most of the losses occurred during the first few hours. The volatiles were found, on mass spectrometer analysis, to consist almost entirely of water.

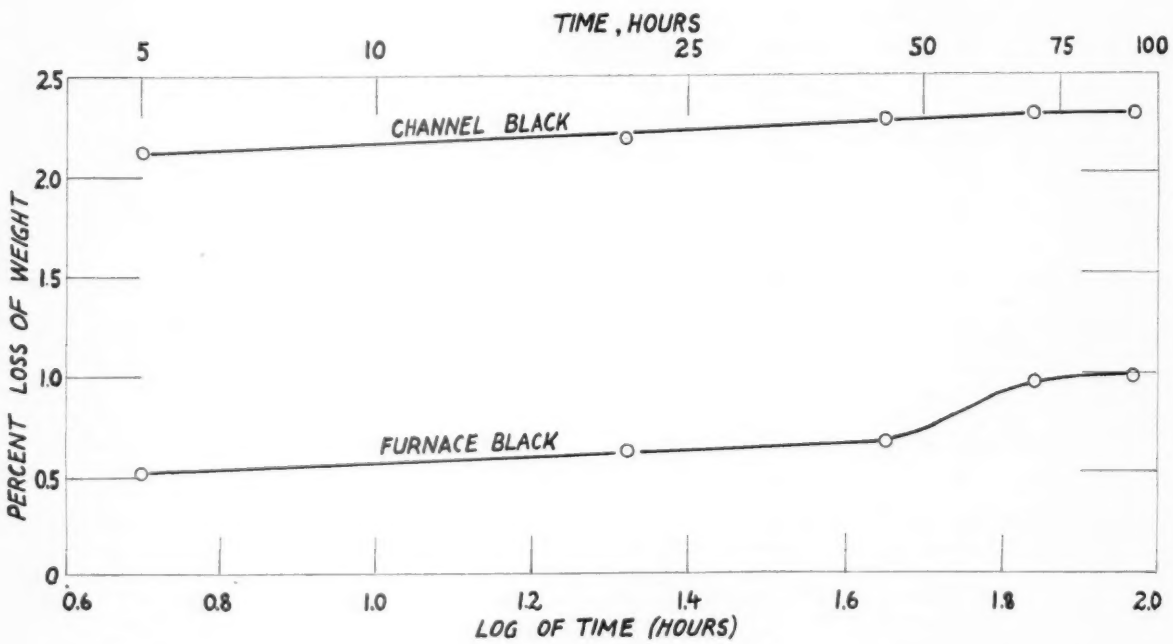


FIG. 1—Loss in weight of furnace and channel blacks on pre-evacuation at room temperature for 94 hours.

The pre-evacuated samples were analyzed for C, O, and H. Precautions were taken to avoid adsorption of air or moisture on the samples during the analysis by opening the sealed tubes and transferring the contents in an atmosphere of dry helium. Analysis showed the following composition in percent of dry sample:

Black	Oxygen	Hydrogen	Carbon	Ash	Total
Channel	3.6	0.68	95.5	0.005	99.785
Furnace	2.5	0.50	96.5	0.230	99.730

A diagram of the apparatus is shown in Figure 2. A fused quartz capsule (A), containing a weighed sample of carbon black, was sealed to a Dewar-like apparatus (B) at point C. A Pyrex capsule (D), containing a weighed sample of the same black, was sealed to the apparatus at E. The apparatus was then evacuated at room temperature for 22 hours by means of an oil pump and a mercury diffusion pump, not shown in the figure. The volatiles from this pre-evacuation step were removed for analysis. At the end of the pre-evacuation period the Pyrex capsule (D) was sealed off by means of an oxygen flame at E, while the apparatus was being evacuated.

The capsule and contents were weighed, then the stem was broken carefully and, after removing the black, the glass parts were weighed again. Allowance was made for the fact that the capsule was evacuated before it was broken. Loss of weight of the sample in the Pyrex capsule (D) was thus determined. It was found in a series of preliminary experiments that the sample of black in the quartz capsule (A) had suffered about the same loss in weight as that in the Pyrex capsule (D). In this manner loss of weight of sample in A, due to pre-evacuation, could be determined without exposing the sample to air.

At the end of this pre-evacuation period, stopcock F was closed and the quartz capsule (A) was heated by means of a nichrome resistance furnace. Temperatures were read by means of a Pt-Pt Rh thermocouple tied to the capsule at the level of the carbon sample. The capsule was heated to 100°C. and this temperature maintained for 4 hours. The volatile products were collected on condenser O of the Dewar-like apparatus containing liquid nitrogen. The outer jacket (G) served to prevent condensed moisture from running into the furnace. Noncondensable gases, such as N_2, O_2, CO, etc., were pumped from the pyrolysis chamber by means of a mercury diffusion pump (N)* and collected in the space between this pump and stopcock F.

A three-way McLeod gage (not shown in the figure), reading up to 25 mm Hg, was used in measuring pressure on the high-pressure side of the mercury diffusion pump (N). A liquid nitrogen trap (I) served to keep mercury from condensing on O. Sample tubes (K), provided with ground joints and stopcocks, were used to collect gaseous samples for mass spectrometer analysis. On the basis of pressure, volume and composition, weight of the noncondensable gas mixture could be calculated.

At the end of the 100° heating period, stopcock P was closed. The condensate on O was fractionated, first at −80°C. by replacing the liquid nitrogen with dry ice, and then at room temperature. The fractions were collected at liquid nitrogen temperature in weighed small tubes (L) provided with ground joints. After collecting these fractions, tubes L were fused at M. At the completion of an experiment involving heating stages at higher temperatures, the tubes were removed, and then used in mass spectrometer analysis. The −80° fraction contained mostly CO_2, while the room tempera-

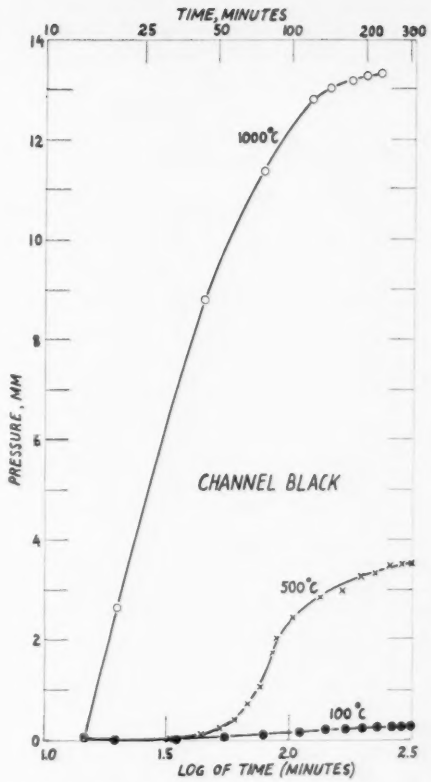


FIG. 3—Pressure developed in the apparatus during pyrolysis of channel black in a vacuum at 100°, 500°, and 1000°C.

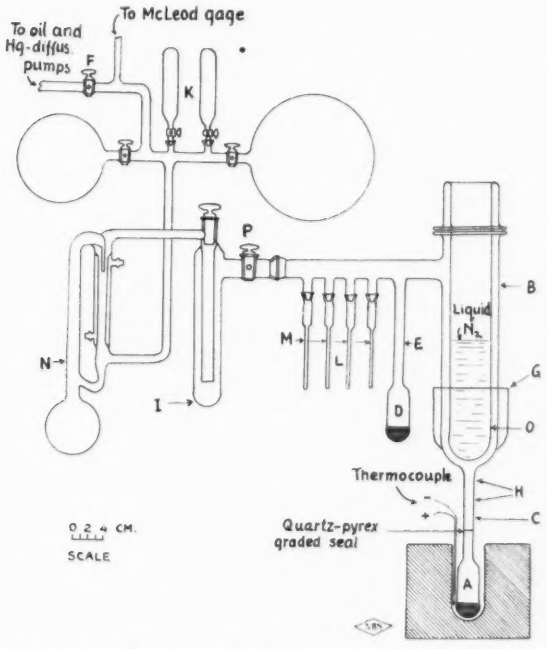


FIG. 2—Apparatus for pre-evacuation and for pyrolysis of channel and furnace blacks in a vacuum.

* Todd vacuum pump, rated to operate at a back pressure of about 25 mm Hg.

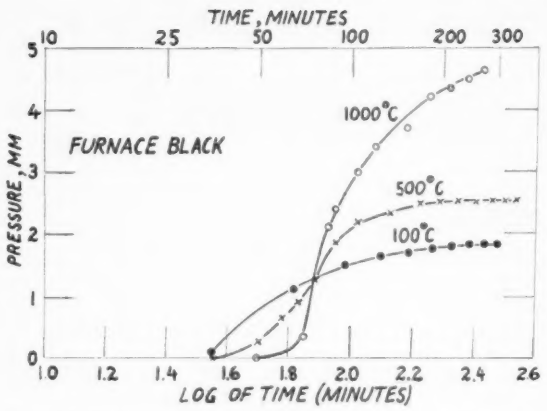


FIG. 4—Pressure developed in the apparatus during pyrolysis of furnace black in a vacuum at 100°, 500°, and 1000°.

ture fraction contained mostly H_2O. This procedure was found to be important since in the presence of a large amount of CO_2, the H_2O peaks in the mass spectrometer become less pronounced.

After collecting all the samples, the apparatus was evacuated and the second heating step carried out at 500°, by heating the quartz capsule (A) quickly to 500°C., and maintaining this temperature for 3 hours. Samples were collected in the same manner as in the first heating step. In some experiments the first step consisted of heating the pre-evacuated sample for 3 hours at 500°, and the second step of heating for the same period at 1000°C. At the end of the last heating step, the quartz capsule (A) was sealed off while the apparatus was still evacuated and total loss in weight of the sample, due to pre-evacuation and the several heating steps, was determined.

Pressure of the gaseous mixture, noncondensable at the temperature of liquid nitrogen, during the various heating operations, served as an indication of the progress of a given pyrolysis experiment. In Figures 3 and 4 variation of pressure with time in the 100°, 500°, and 1000° steps is shown for the channel black and furnace black respectively. Judging from the shape of the 1000° curves, elimination of volatiles from the two blacks is incomplete after 3 hours of heating at this temperature.

In addition to the fractions collected in tubes K and L, there was also, in the case of the furnace black, a small deposit of yellow wax in the stem of the quartz capsule (A) at H. Deposition of this wax began at about 300°C. and was complete at about 500°. Apparently, this wax is not very volatile, for it did not reach condenser O. The wax was dissolved with CS_2 into a platinum crucible and weighed after the solvent was evaporated.

A more volatile, white, waxlike material was found, in the case of both blacks, on condenser O after the two fractions, one volatile at −80° and the other volatile at room temperature, were allowed to vaporize, as described above. This wax was also dissolved with CS_2 into a platinum crucible and weighed after evaporating the solvent. The yellow and the white wax could not be analyzed in the mass spectrometer because of their low volatility, and their amount was too small for conventional chemical analysis.

Experimental Results

A material balance of pyrolysis of the two blacks is shown in Table I. All the values in this table are expressed in percent of weight of the "dry" sample, i.e., of the sample after pre-evacuation. On comparing the total weight of all the volatilized fractions collected in a given experiment, with actual loss in weight as determined by weight of the residue, we find that the collection in every case was incomplete. Thus, in the case of furnace black, only 85.2 percent of the actual loss was collected when the black was heated from room temperature to 500°, and 67.1 percent was collected when the sample was heated from 500° to 1000°. In the case of channel black, the corresponding values are 63.6 percent and 94.9 percent. In another series of experiments, where we used a more efficient method of collecting the volatiles by forcing them through liquid nitrogen-cooled U-tubes, the collections amounted to almost 100 percent of the actual losses as determined by weight. In Table I losses by volatilization for the two blacks are also shown calculated on the basis of 100 percent (columns 4 and 6). As seen from this table, the total amount of volatiles up to 1000°C. from channel

TABLE I—VOLATILE MATERIALS RESULTING FROM PYROLYSIS OF FURNACE BLACK AND CHANNEL BLACK[1]

		Percentage of volatile material			
		Furnace Black		Channel Black	
Temperature range °C	Method of determination	Exptl. %	Based on total %	Exptl. %	Based on total %
Room temperature	Loss on pre-evacuation for 22 hrs.....	0.72(4)[2]	0.72	2.37(5)	2.37
	Pyrolysis of dry blacks to 500°				
Room temp. to 100°	Total volatiles	0.54(3)	0.63	0.18(3)	0.28
100° to 500°	Total volatiles	0.73(3)	0.86	0.64(3)	1.01
Room temp. to 500°	Total volatiles in above 2 steps.....	1.27(3)	1.49	0.82(3)	1.29
Room temp. to 500°	Determined from loss of weight.....	1.49(3)	—	1.29(3)	—
Room temp. to 500°	Percent volatiles recovered.....	85.20(3)	—	63.60(3)	—
	Pyrolysis of dry blacks to 1000°				
Room temp. to 500°	Total volatiles	1.02(1)	1.52	1.00(2)	1.05
500° to 1000°	Total volatiles	0.92(1)	1.37	3.85(2)	4.06
Room temp. to 1000°	Total volatiles in above 2 steps.....	1.94(1)	2.89	4.85(2)	5.11
Room temp. to 1000°	Determined from loss of weight.....	2.89(1)	—	5.11(2)	—
Room temp. to 1000°	Percent volatiles recovered.....	67.10(1)	—	94.90(2)	—
Room temp. to 1000°	Total loss including pre-evacuation.....	3.61	—	7.48	—

[1] All collections of volatiles and actual losses of weight are expressed in percent of pre-evacuated or dry samples. [2] Numbers in parentheses indicate number of experiments averaged for any particular value.

black is more than twice as large as that from furnace black.

Table II shows mass spectrometer analysis of the volatiles collected at various temperatures in the pyrolysis of the two blacks. The values are expressed in weight percent of the total volatiles given at any temperature range during pyrolysis of a pre-evacuated sample. In converting the mole percentages obtained in mass spectrometer analysis into weight percentages, the denominator used for each component was obtained by adding the weights of components, recognized and measured in the mass spectrometer, to the weight of the wax obtained by direct weighing. In the temperature range—room temperature to 100°—composition of the volatiles is about the same for both blacks and consists mainly of water and small amounts of carbon dioxide and air. Thus, volatilization in this temperature range is merely a continuation of the pre-evacuation step.

As seen from Figure 1, pre-evacuation for 22 hours at room temperature does not eliminate all of the water held loosely on the black, so that this water continues to vaporize when the sample is heated at 100°. In the temperature range 100° to 500° the two blacks behave differently. In the furnace black the main constituents of the volatiles are CO_2, H_2O, and CO, in this order. In the channel black the order is CO, CO_2, and H_2O. The other difference is in the amount of wax. While in the furnace black this constituent, equally divided between the less volatile yellow variety and the more volatile white variety, amounts to 7.2 percent, in the channel black only the white wax appeared and the amount is 1.9 percent.

A CS_2 solution of either wax gave a negative test for free sulfur. Infrared analysis of these waxes in solution of CCl_4 and CS_2 showed the presence of CH and C = O groups. Schoenfeld *(2)* found that when carbon blacks are heated in a vacuum or when extracted with benzene, they yield a reddish or gray-green tar, amounting in most cases to a fraction of one percent of the blacks. According to him, this tar consists of a number of crystalline organic compounds varying in color from a deep red to a light yellow. Krizek *(3)* extracted carbon blacks with benzene and found, in the case of furnace black, a reddish wax residue.

In the range room temperature to 500°, where the heating was carried out in one step by raising the temperature quickly to 500° and maintaining it at this point for 3 hours (section c in Table II), the chief constituents are CO_2, CO and H_2O, in this order for both blacks. Calculations show that when pyrolysis is carried out in two steps, first at 100° for 4 hours (section a, Table II) and then at 500° (section b), the combined analysis differs from that when pyrolysis is carried out in one step for 3 hours at 500° (section c). This is to be expected, since the time element is here involved, as can be seen from the curves in Figures 3 and 4.

In the temperature range 500° to 1000° (section d of Table II) the main constituents by weight are CO, CO_2, and H_2, in this order for both blacks. Water appears in minute quantities. While the total amount of volatiles from channel black is almost double that from furnace black (Table II), relative amounts of constitutents are about the same in both cases.

Small amounts of hydrocarbons were found in the volatiles of both blacks in the temperature range 100° to 500°. These amounts were too small to give satisfactory mass spectrometer analysis of individual components. However, in a series of preliminary experiments *(4)*, 8 to 10 gram samples of the two blacks were pyrolyzed in a vacuum. Mass-spectrometer analysis of the volatiles showed the presence of small amounts of C_3-aldehyde, C_6-paraffins, C_6-olefins, C_7-paraffins, C_7-olefins and C_6H_6. Johnson *(5)* reports the presence of small amounts of CH_4 and C_2H_6 in the volatiles of carbon blacks heated to 955°C. in the absence of air. The presence of these compounds was not found in this investigation at temperatures up to 1000°C.

Total amounts of hydrogen and oxygen in the volatiles were calculated for the two blacks from data given in the lower part of Table I under the heading "Pyrolysis of Dry Blacks to 1000°" and from those given in sections c and d of Table II. The results, shown in Table III, in comparison with the amounts of these constituents in the original dry blacks, indicate that not all the hydrogen and oxygen were volatilized by pyrolysis even to 1000°C.

TABLE II—MASS SPECTROMETER ANALYSIS OF VOLATILE PRODUCTS OBTAINED IN THE PYROLYSIS OF FURNACE BLACK AND CHANNEL BLACK TO A MAXIMUM TEMPERATURE OF 1000°C.

(The values shown were obtained by converting mole percent into weight percent.)

Temperature range	Component	Furnace wt. %	Channel wt. %
Volatiles collected from room temperature to 500°			
		(2)[1]	(2)
(a) Room temp. to 100°	Water	92.9	84.0
	Carbon dioxide	2.7	13.2
	Nitrogen	3.3	2.6
	Oxygen	0.5	0.2
	Hydrocarbons	0.6	T
	Argon	T[2]	T
	Total	100.0	100.0
		(2)	(2)
(b) 100° to 500°	Water	30.6	9.5
	Carbon dioxide	52.5	29.5
	Carbon monoxide	9.4	59.0
	Oxygen	T	0.1
	Hydrocarbons	0.2	T
	Wax[3]	7.2	1.9
	Sulfur dioxide	0.1	—
	Total	100.0	100.0
Volatiles collected from room temperature to 1000°			
		(1)	(2)
(c) Room temp. to 500°	Hydrogen	0.2	T
	Water	15.4	3.1
	Carbon dioxide	60.0	53.5
	Carbon monoxide	18.8	38.6
	Nitrogen	1.4	2.2
	Oxygen	T	0.1
	Hydrocarbons	T	T
	Wax	4.2	2.5
	Sulfur compounds.	T	T
	Total	100.0	100.0
		(1)	(2)
(d) 500° to 1000°	Hydrogen	3.9	7.0
	Water	0.1	0.8
	Carbon dioxide	18.2	16.4
	Carbon monoxide	77.5	75.8
	Sulfur compounds.	0.3	—
	Total	100.0	100.0

[1] Number in parentheses indicates number of analyses averaged. [2] T stands for trace. [3] The wax could not be analyzed in the mass spectrometer and its amount was determined by weighing.

Discussion of Results

The results of this investigation indicate the presence in the two blacks of considerable quantities of water.

Most of this water is loosely adsorbed and can be removed by prolonged evacuation at room temperature. However, the amount of this loose water was about 2 times as great in the channel black as in the furnace black. The chief volatile products resulting from pyrolysis up to 1000°C., in addition to water, are carbon dioxide, carbon monoxide and hydrogen. The first two predominate at temperatures up to 500° and the other two in the range 500° to 1000°C., if we consider mole percent instead of weight percent.

The possible sources of CO_2 and CO in the volatiles are:

1. Adsorbed CO_2 and CO on the surface of the blacks.
2. Reaction between adsorbed O_2 and carbon.
3. Reaction between adsorbed H_2O and carbon. In this reaction a lower temperature is more favorable to the formation of CO_2,

$$\text{I.}\quad 2H_2O + C \rightarrow 2H_2 + CO_2$$

while a higher temperature is more favorable to the formation of CO,

$$\text{II.}\quad H_2O + C \rightarrow H_2 + CO.$$

The possible sources of H_2 in the volatiles are:

1. Reactions I and II given above.
2. Hydrogen which is in chemical combination with carbon.

In regard to chemically-held hydrogen, Baker *(6)*, for example, found that highly cross-linked divinyl benzene and polyvinyl acetylene can be dehydrogenated at temperatures up to 1200°C. so that only one hydrogen atom per 23 carbon atoms is left in the char. In view of this, it is possible that some hydrogen remains in the blacks when they are formed during combustion of hydrocarbons.

In the temperature range 500° to 1000° the chief volatiles are H_2 and CO, as can be seen from Table IV. This fact, and the fact that water continues to appear in the volatiles even at 1000°, would seem to indicate that the chief source of H_2 and CO in the temperature range 500° to 1000° is the water-gas reaction (reaction II above). On the other hand, CO and CO_2 at lower temperature come most likely from two sources: from adsorbed gases as such and from a reaction of O_2 with carbon. The absence of H_2, except for a trace in the volatiles at 500°, eliminates the possibility that CO and CO_2 have their origin at this temperature in the reactions between H_2O and carbon.

Conclusions

The main difference in the results of pyrolysis of furnace and channel black is in the amount of volatiles, particularly water. In the pre-evacuation step at room temperature, water is the main volatile product. In this step, which lasted 94 hours, channel black lost 2.3 percent and furnace black only one percent in terms of the dry sample. Considering total loss in weight up to 1000° (Table I), channel black lost 7.48 percent and furnace black lost 3.61 percent.

Surface areas of channel and furnace blacks are given as 100 and 65 sq. m/g, respectively *(7)*. This may explain why a larger amount of water and other volatiles is adsorbed on the channel black. Calculations show that the volatiles evolved from pyrolysis, in the case of either of the two blacks, would cover less than half the surface area. The larger amount of adsorbed materials, particularly water held on this surface, in the case of the channel black, may cause a reduction in the adhesive forces between the rubber and the particles of black, so that tires containing channel black wear out faster than those containing furnace black.

Another difference in the behavior of the two blacks during pyrolysis is the amount of wax volatilized. As seen from Tables I and II, the wax appears in the temperature range below 500°, to the extent of about twice as much in furnace as in the channel black. The effect of the wax in the black on the tread-wear properties of tires might be opposite from that of water, so that tires compounded with furnace black would have a longer wear than those compounded with channel black, first because of lower water content, and second, because of higher wax content in the furnace black.

TABLE III—TOTAL HYDROGEN AND OXYGEN IN VOLATILES FROM FURNACE AND CHANNEL BLACKS PYROLYZED IN TWO STEPS: FIRST FROM ROOM TEMPERATURE TO 500°, THEN FROM 500° TO 1000°C. THESE TOTALS COMPARED WITH THE AMOUNTS PRESENT IN THE ORIGINAL DRY SAMPLES.

(Values given in percent of dry samples)

	Oxygen		Hydrogen	
Type of black	In dry sample %	In volatiles %	In dry sample %	In volatiles %
Channel	3.6	2.94	0.68	0.29
Furnace	2.5	1.82	0.50	0.08

TABLE IV—MASS SPECTROMETER ANALYSIS OF VOLATILES OBTAINED IN THE PYROLYSIS OF FURNACE BLACK AND CHANNEL BLACK IN THE TEMPERATURE RANGE 500° to 1000°

Component	Furnace mole %	Channel mole %
H_2	38.0	52.9
H_2O	0.1	0.7
CO_2	8.1	5.6
CO	53.8	40.8

ACKNOWLEDGMENTS

The authors wish to thank F. L. Mohler for many valuable suggestions in connection with this work and also R. M. Reese and Laura Schwartz who carried out the mass-spectrometer analysis.

SPECIAL NOTE

The work discussed herein was performed as a part of the research project sponsored by the Reconstruction Finance Corporation, Office of Synthetic Rubber, in connection with the Government Synthetic Rubber Program.

LITERATURE REFERENCES

(1) Mandel, J., Steel, M. N., and Stiehler, R. D., *Ind. Eng. Chem.*, Vol. 43, p. 2901 (1951).
(2) Schoenfeld, F. K., *Ind. Eng. Chem.*, Vol. 27, p. 571 (1935).
(3) Krizek, H., Technical Report to the Reconstruction Finance Corporation, Office of Synthetic Rubber, Research and Development Division, Polymer Research Branch.
(4) Wise, C. E., Jr., National Bureau of Standards, unpublished work.
(5) Johnson, C. R., *Ind. Eng. Chem.*, Vol. 20, p. 904 (1928).
(6) Baker, W. O., *Chem. Eng. News*, Vol. 29, p. 3951 (1951).
(7) Drogin, I., and Bishop, H. R., "Today's Furnace Blacks," United Carbon Co., Charleston, West Virginia, p. 36 (1947).

The Reinforcement of Butyl with Carbon Black

Part II—Specific Action of Surface Oxygen

By R. L. ZAPP and A. M. GESSLER

Esso Laboratories, Chemical Division, Standard Oil Development Co., Elizabeth, N. J.

IT was shown in the first paper of this series *(1)* that the heat treatment of Butyl-channel black mixtures leads to pronounced improvements in stress-strain and damping properties of the resulting vulcanizates. The mechanism of these effects was discussed in terms of dispersion and associative forces between carbon black and the polymer molecules. It was pointed out that when blacks other than those of the channel type are employed, the heat treating effect cannot be produced unless certain modifications are made in the nature of the black or in the composition of the mixture. The purpose of this paper is to describe how modifications of the carbon black surface influence the results obtained on heat treatment, and to discuss the changes in vulcanizate structure as a function of surface oxygen on the black.

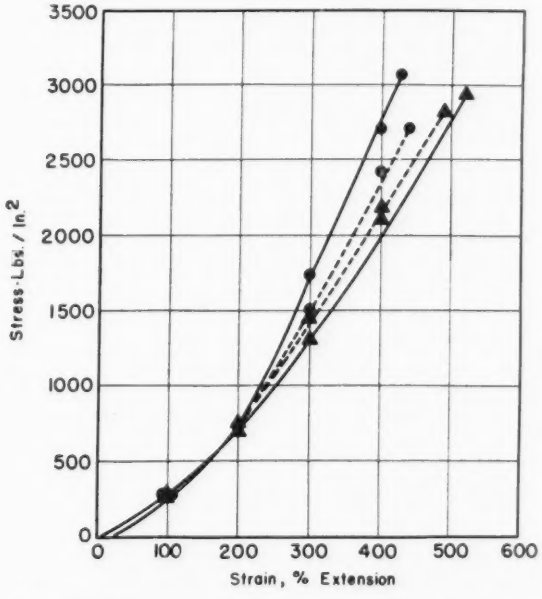


FIG. 1—Effect of surface pH of channel black on the stress-strain properties of untreated and heat-treated Butyl systems. (Dashed lines refer to devolatilized EPC black, pH-9.2, and solid lines to standard EPC black, pH-4.9. The triangles refer to untreated and the circles to heat-treated mixes.)

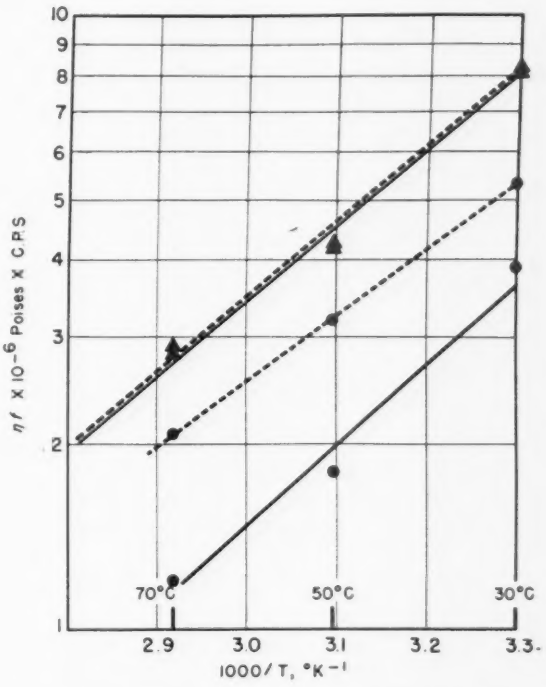


FIG. 2—Effect of surface pH of channel black on the damping properties of untreated and heat-treated Butyl systems. (Dashed lines refer to devolatilized EPC black, pH-9.2, and solid lines to standard EPC black, pH-4.9. The triangles refer to untreated, and the circles to heat-treated mixes.)

An early observation *(2)* revealed that when the oxygen content of the carbon surface is increased, holding particle size constant, a greater portion of the Butyl rubber in the unvulcanized mixtures is insolubilized. In the present work, the effect of removing oxygen from the channel black surface was first examined. A parallel study was made of the effect of adding oxygen to furnace black surfaces, which are essentially oxygen-free. Finally, the role of oxygen in these effects was studied by adding successive amounts of oxygen to a commercial furnace black. Heat treatment was used in all of these

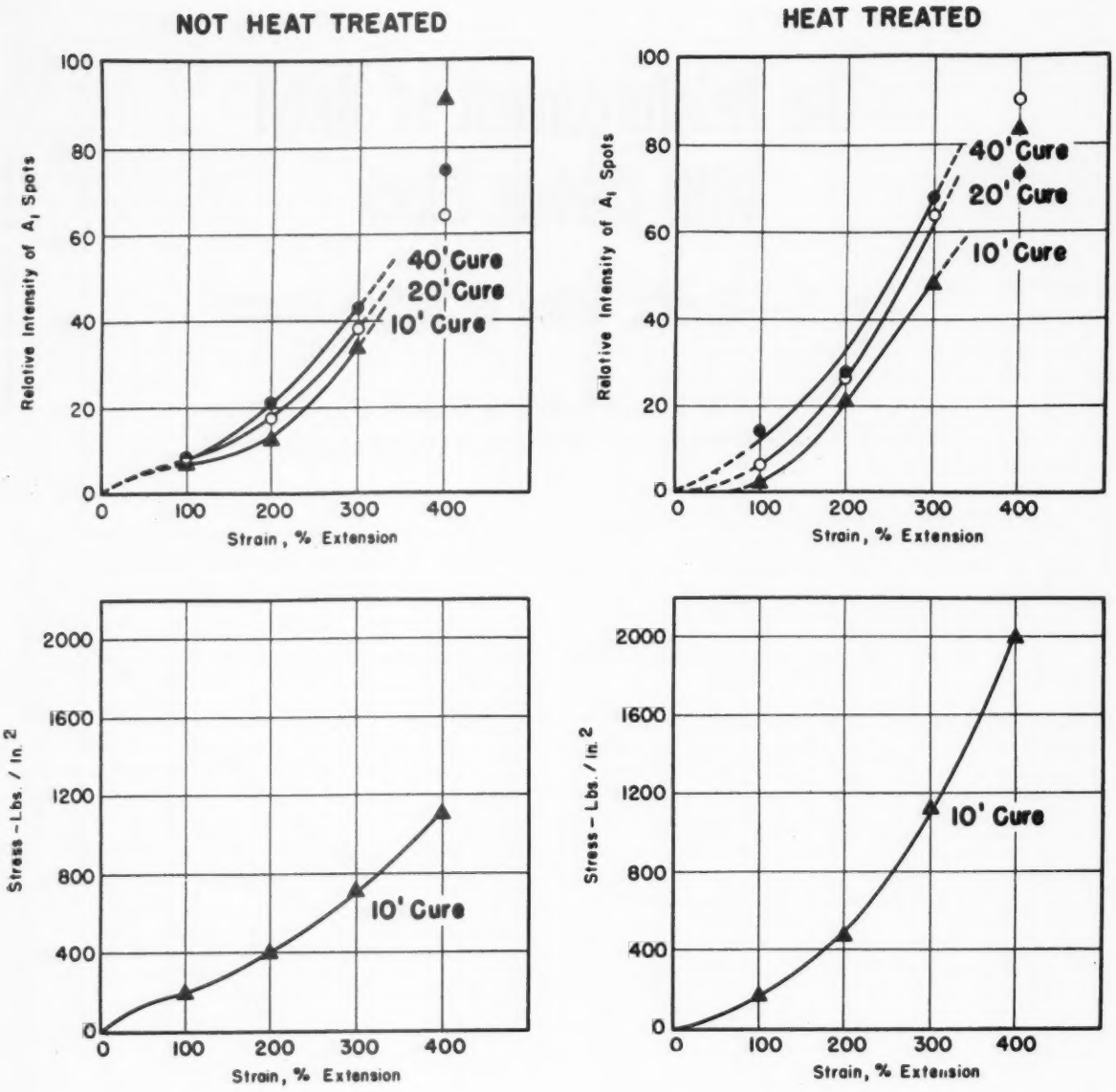


FIG. 3—Correlation between stress-strain properties and x-ray diffraction patterns of untreated and heat-treated Butyl channel black systems.

experiments to demonstrate the specific reactivity of oxygenated carbon surfaces.

Channel Black Surface Modification

Channel blacks contain a surface layer of chemisorbed oxygen (3 per cent or more by weight). This oxygen is present as oxides of carbon and is responsible for the surface pH effect *(3, 4)*; the higher the oxygen content, the lower or more acidic is the surface pH as measured in a water slurry. The chemisorbed oxygen can be removed as CO and CO_2 at high temperatures (1400 to 1800°F.) in the absence of air without appreciable change in the particle size or structure *(5)*.

Devolatilization was carried out in an electric muffle furnace at 1600°F. An EPC black (particle diameter, 30 mμ) was placed in a stainless steel tube and heated under vacuum for 3 hours. The black was maintained under vacuum during the cooling period which followed. The surface pH before and after devolatilization was as follows:

Carbon Sample	*Surface pH (Water Slurry)*
Before Devolatilization	4.9
After Devolatilization	9.2

The dependence of surface pH on volatile content is clearly indicated. The devolatilized carbon black and its control were compounded according to the following formulation:

Masterbatch	
Butyl (GR-I-17)	100.00
Carbon Black	50.00

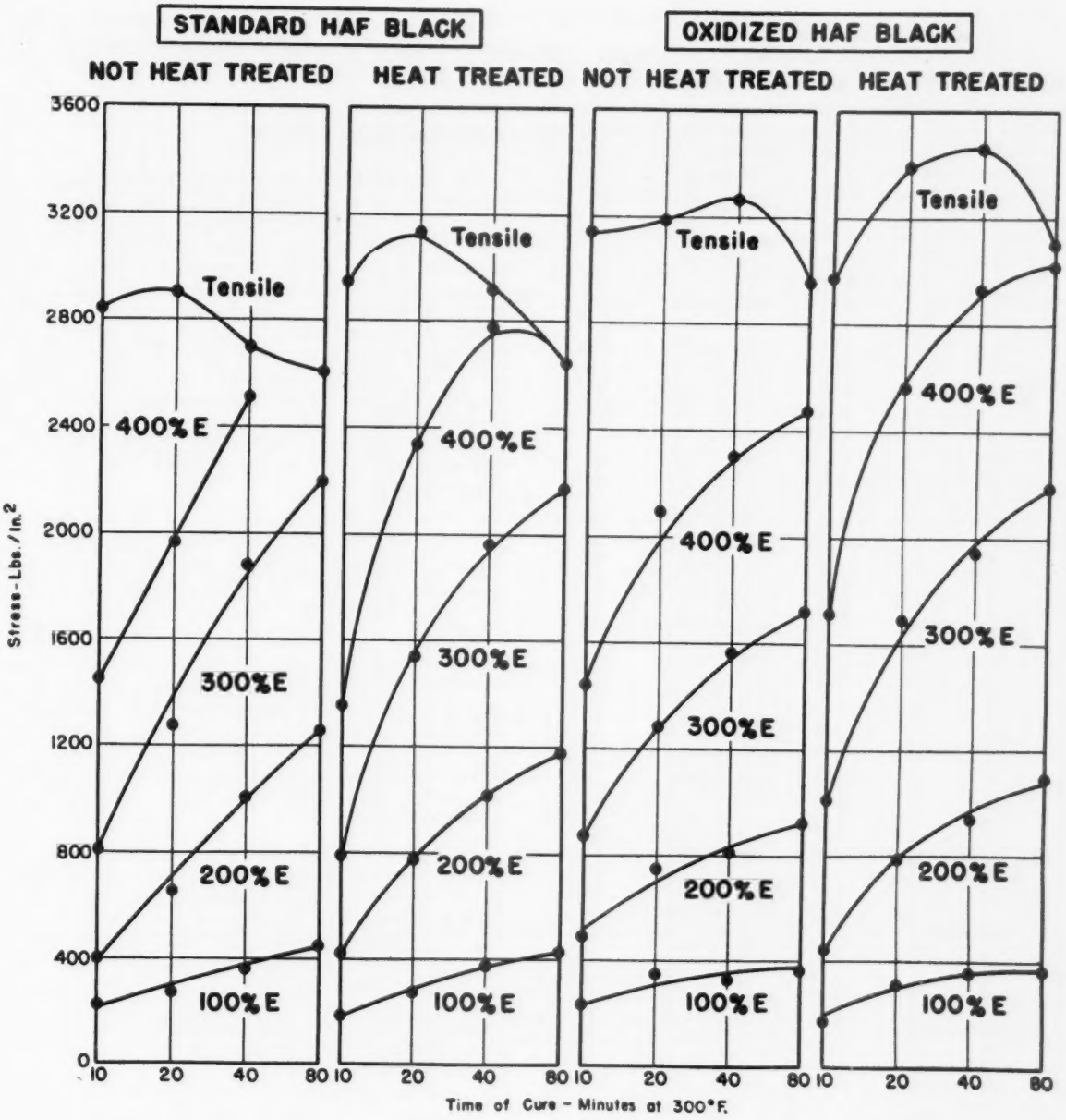


FIG. 4—Effect of surface oxidation of HAF black on the vulcanizate properties of untreated and heat-treated Butyl systems.

Vulcanizing Agents	
Zinc Oxide	5.00
Sulfur	2.00
Tetramethylthiuram Disulfide	1.25

The masterbatches were prepared in the conventional manner on a 6 x 12-inch mill and vulcanizing agents were added later, in one case without heat treatment, and in the other case after cyclic heat treatment [alternate heating and milling as described in reference *(1)*]. The completed compounds were cured for 40 minutes at 320°F. Stress-strain curves in Figure 1 show that the original channel black responds to heat treatment as previously demonstrated *(1)*, whereas the devolatilized channel black does not.

Analogous results are given in Figure 2 for the damping behavior of these vulcanizates under conditions of free vibration *(6)*. Measurements were made at three temperatures and the corresponding values of ηf are plotted in the figure against the reciprocal of absolute temperature. The terms η and f refer to internal viscosity and frequency, respectively; the product ηf is proportional to the energy loss from damping and is inversely proportional to resilience. The improvement in damping behavior resulting from heat treatment is observed to be considerably greater with the original than with the devolatilized channel black. The value of ηf in the former instance (carbon black pH, 4.9) is about

half that in the latter instance (carbon black pH, 9.2), after the same heat treatment.

An X-ray diffraction study has demonstrated that there is a difference in the diffraction patterns of heat treated and conventionally mixed channel black vulcanizates. The difference can be correlated with the nature of the stress-strain curves. Specimens were examined under varying extensions up to 400 per cent, using copper radiation filtered through nickel and operating the X-ray tube at 30 kilovolts and 25 milliamperes. At each extension, the extent of molecular orientation was taken as the difference between the peak intensities of the equatorial and polar halos, corrected for background intensity. It is referred to in this work as the "relative intensity of A_1 spots".

Figure 3 shows that heat treatment leads to a greater intensity of A_1 spots and therefore a greater degree of molecular orientation when the sample is stretched. This is in keeping with the stiffening of the stress-strain curve, also shown in the figure. Since a higher state of cure or increased polymer cross-linking has been observed to give greater orientation for a given extension *(7, 8)*, the results in Figure 3 suggest that heat treatment results in additional bonding of polymer chains. The first paper of this series *(1)* showed that the changes resulting from heat treatment are not due to an influence on the state of cure. Consequently, the additional chain bonding referred to is believed to occur at the carbon black surface.

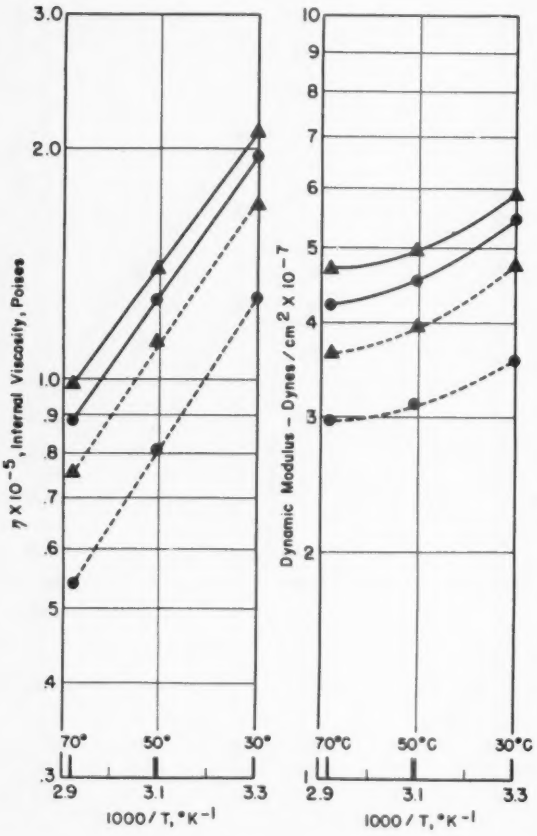


FIG. 5—Effect of surface oxidation of HAF black on the damping properties of untreated and heat-treated Butyl systems. (The dashed lines refer to oxidized HAF black, pH-4.7 and the solid lines to standard HAF black, pH-8.7. The triangles refer to untreated, and the circles to heat-treated mixes. Samples were cured for 80 minutes at 300° F.)

Furnace Black Surface Modification

Since furnace blacks possess negligible amounts of surface oxygen, it was anticipated that the oxidation of a furnace black surface would bestow upon the black certain characteristics of a channel black, insofar as heat treatment is concerned. Accordingly, furnace blacks were oxidized by heating them at 250° to 300°C. in a stream of oxygen *(9)*. The oxidation was accomplished with little or no reduction in particle size *(10)*. Oxidation of an HAF black (slurry pH, 8.7) for 65 hours at 250-275°C. gave a product with a slurry pH (4.7) comparable to that of ordinary channel black. The oxidized product contained 3.82 per cent oxygen (Unterzaucher method). The value is fairly close to that (3.17) which was obtained from a similar analysis of a commercial channel black.

HAF and EPC blacks are in the same particle size range, 28 to 32 mμ. Working with a larger particle size pigment, SRF black of 80 mμ diameter was treated for 70 hours at 300°C. The slurry pH was thus reduced from 9.5 to 3.6 and the product contained 3.67 per cent of oxygen.

The original and oxidized blacks were compounded with Butyl using the formulation already shown. Stearic acid, 0.5 part per 100 parts of polymer, was added to each masterbatch to facilitate handling. Half of each masterbatch was cyclically heat treated before the addition of vulcanizing agents. The compounds were cured for varying times at 300°F. as will be portrayed in the subsequent figures.

HAF Black: Vulcanizate property data in Figure 4 show that very little change occurs in the physical properties when the compound containing unoxidized HAF black is subjected to heat treatment. In contrast, heat treatment of the oxidized HAF black mixture leads to vulcanizates with enhanced modulus values at the higher extensions. Thus, oxidation of the HAF black has in essence converted it to a channel type carbon, insofar as its response to heat treatment is concerned. Figure 5 shows that Butyl vulcanizates containing oxidized HAF black are improved considerably with respect to damping behavior by heat treatment. The unoxidized black system, on the other hand, improves only slightly under the same conditions of treatment. These measurements were made in a forced vibration test (10 per cent static extension, 10 per cent amplitude, 16 cycles per second) and data are presented to show the comparable changes which result in dynamic modulus. Here again the similarity to channel black (Figure 2) is apparent.

The presence of oxygen on the surface of carbon black has a profound effect on the abrasion resistance of Butyl vulcanizates. Figure 6 shows some abrasion loss data which were obtained on a Lambourn Abrader. A modified abrader of this type has been described recently *(11)*; the one used in these laboratories was constructed from an original Dunlop Rubber Co. design using an electrical braking mechanism. The abrasion losses at 20% slip, expressed in grams per kilometer run, are plotted against the time of cure. Column 1 shows the effect of heat treatment on EPC black compounds and confirms the beneficial results already reported in previous work *(1)*. Column 2 demonstrates that heat treat-

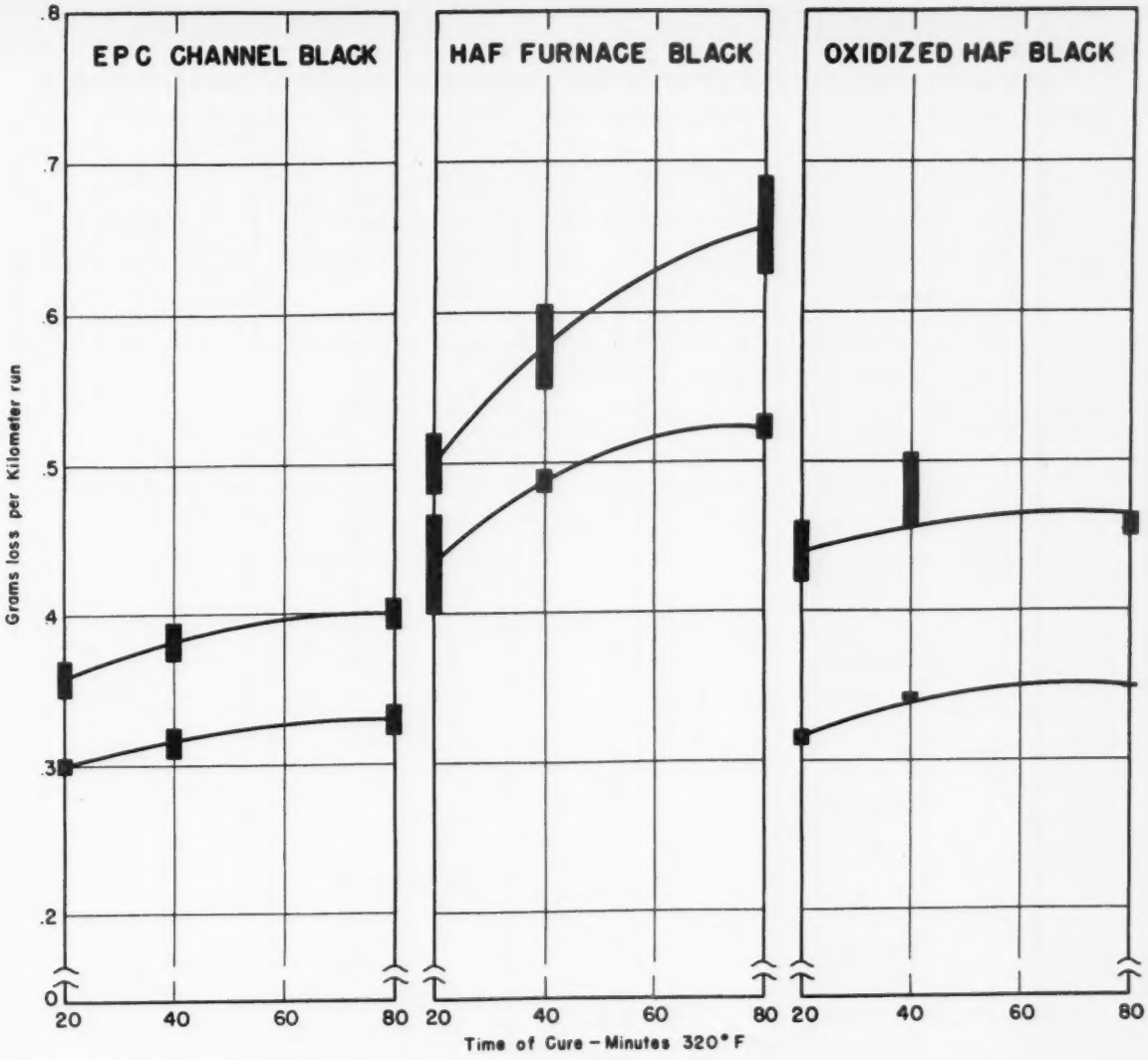


FIG. 6—Effect of surface oxygen on the abrasion resistance of untreated and heat-treated Butyl systems. (The upper curves refer to untreated, and the lower curves to heat-treated compounds.)

ment also improves the wear resistance of unoxidized HAF systems, even though the over-all level of abrasion loss is much higher than with the EPC systems, and is also more sensitive to the extent of vulcanization. Column 3 shows that oxidation of the HAF black surface reduces the abrasion loss in the Butyl vulcanizate to the level of the channel black systems. Finally, heat treatment of the latter compound further reduces abrasion loss and makes the stock less sensitive to variations in the time of cure.

SRF Black: Figure 7 contains vulcanizate data obtained from the Butyl compounds with regular and oxidized SRF black, before and after heat treatment. The results are quite similar to those presented in Figure 4 for systems containing HAF black. It is noteworthy that in unoxidized SRF systems, tensile strength decreases sharply with increasing time of cure and that this troublesome behavior is not modified by heat treatment. In contrast, when the black is oxidized, tensile strengths remain practically constant over the cure range employed and, in addition, heat treatment shows its customary effects.

It has already been pointed out that the heat treatment of channel black systems gives vulcanizates which display increased orientation at any given extension, as revealed by X-ray studies. The second series of X-ray experiments in Figure 8 associates the superior alignment with the oxygenated carbon surface. Heat treatment of compositions containing regular furnace carbon does not impart the same degree of fiberization.

The parallel between the oxidized SRF system and the channel black system is further illustrated by Figure 9, which contains damping data for the various SRF vulcanizates, tested under conditions of forced vibration. Comparison with Figure 5 reveals that about the same reduction in internal viscosity is obtained on heat treating an oxidized SRF black system and an oxidized HAF black system. It will be recalled that the pH values of these two oxidized blacks are nearly the same. On the basis of these results, one would surmise that blacks oxidized to intermediate degrees would show only part

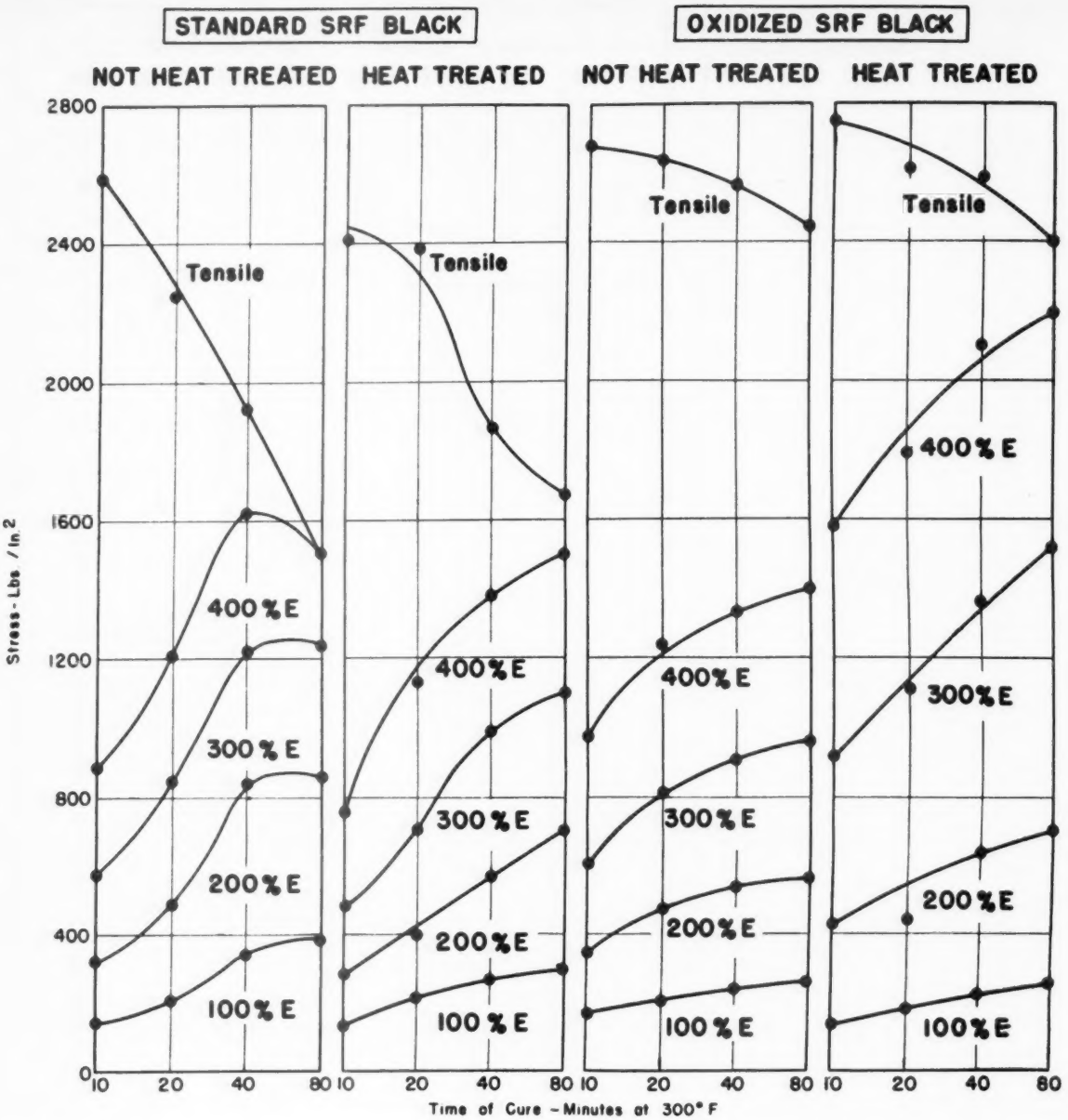


FIG. 7—Effect of surface oxidation of SRF black on the vulcanizate properties of untreated and heat-treated systems.

of this reduction in internal viscosity after heat treatment.

Effect of Varying Carbon Black Surface Oxidation

A series of modified SRF blacks was prepared by carrying out the oxidation for varying extents of time. The resulting products were found to have slurry pH values of 9.2, 6.8, 5.3, and 4.1, in the order of increasing oxidation time. The oxygen contents, correspondingly, ranged from 0.5 to 3.5 per cent. The four blacks were compounded and heat treated as already described, and the final batches were vulcanized at 307° F. Figure 10 shows that the modulus at higher extensions increases with increasing surface oxidation or decreasing pH values, and passes through a maximum in the neighborhood of pH 5.0. The largest incremental improvement in stress properties occurs with the first addition of oxygen to the surface. The flatness of the tensile strength curves, that is, the insensitivity of tensile strength to the time of cure, increases progressively with increasing surface oxidation. It is interesting to note that the enhancement of modulus with extent of surface oxidation is not accompanied by a reduction in extensibility. This is a further manifestation that increased surface oxidation results in greater molecular alignment when the vulcanizate is stretched.

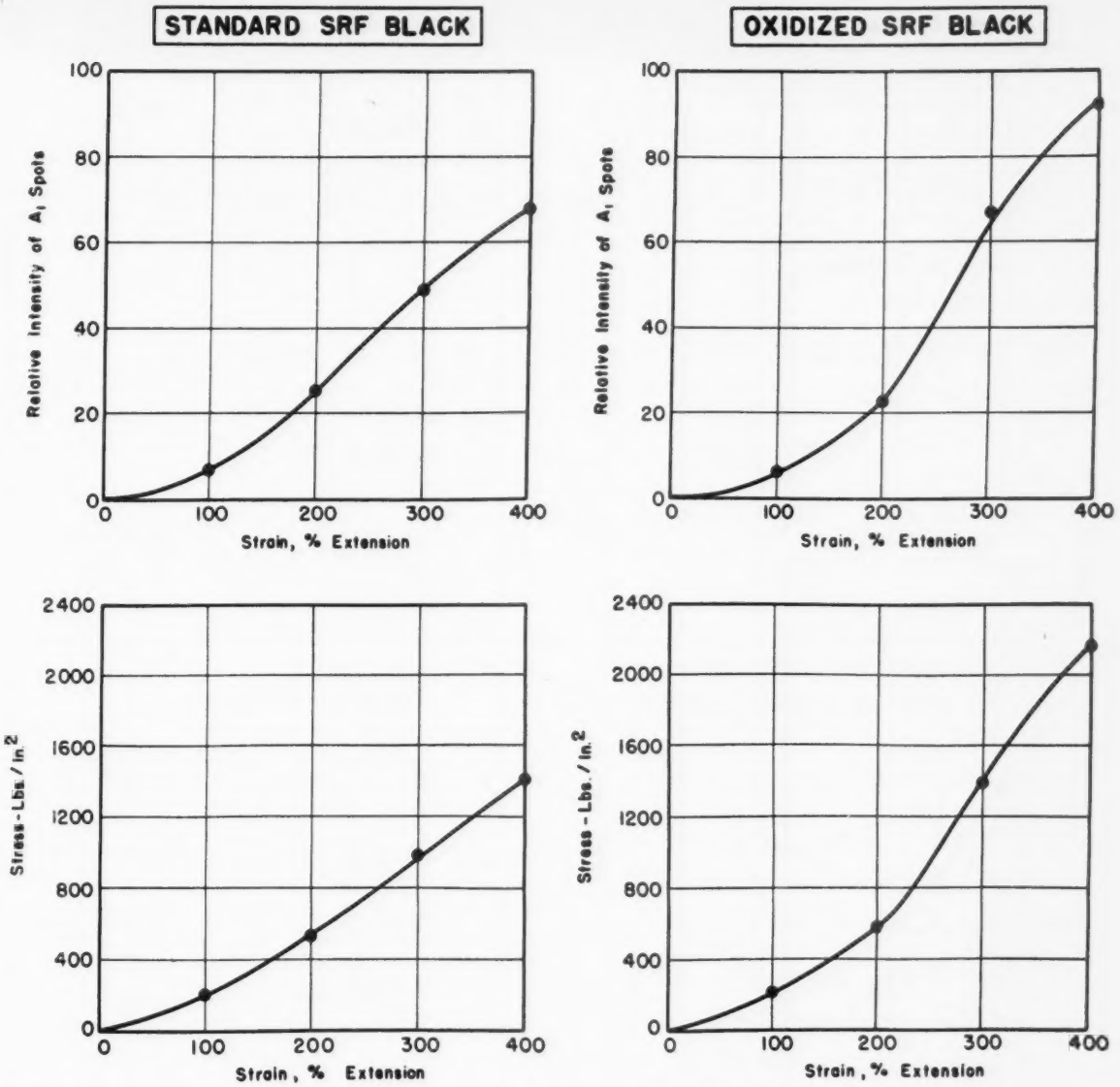


FIG. 8—Correlation between stress-strain properties and x-ray diffraction patterns of heat-treated Butyl systems with standard and oxidized SRF black. (Samples cured for 40 minutes at 300° F.)

The damping properties of the vulcanizates are shown in Figure 11. The results confirm the previous surmise that the reduction in damping properties parallels the extent of surface oxidation, i.e., the internal viscosity and dynamic modulus decrease with decreasing surface pH over the range studied. The divergence of the internal viscosity and relative damping (ratio of dynamic modulus and internal viscosity) curves for the conventionally mixed and the heat-treated systems shows that oxidation of the black surface increases its responsiveness to the heat-treating process.

Summary

The enhancement of physical properties by the heat treatment of Butyl carbon black systems has been shown to be dependent upon the presence of oxygen on the pigment surface.

The combined oxygen was removed from the surface of a channel type carbon black and compared to an original sample containing 3% oxygen. Removal of oxygen definitely reduced the responsiveness of the carbon black to heat treatment. Oxygen was also placed on furnace type carbon black by mild heating in an oxygen atmosphere. This activated surface was then responsive to heat treatment, yielding Butyl vulcanizates of higher tensile, modulus and resilience.

X-ray patterns of stretched vulcanized Butyl showed that the heat-treated mixtures containing oxygenated carbon blacks were capable of superior molecular alignment. This greater degree of orientation at a given elongation, attributed to better pigment-polymer bonding, produced the superior tensile and dynamic properties.

These concepts of the value of carbon surface oxidation are at variance with earlier thinking on rubber reinforcement. It has been implied *(12, 13)* that the

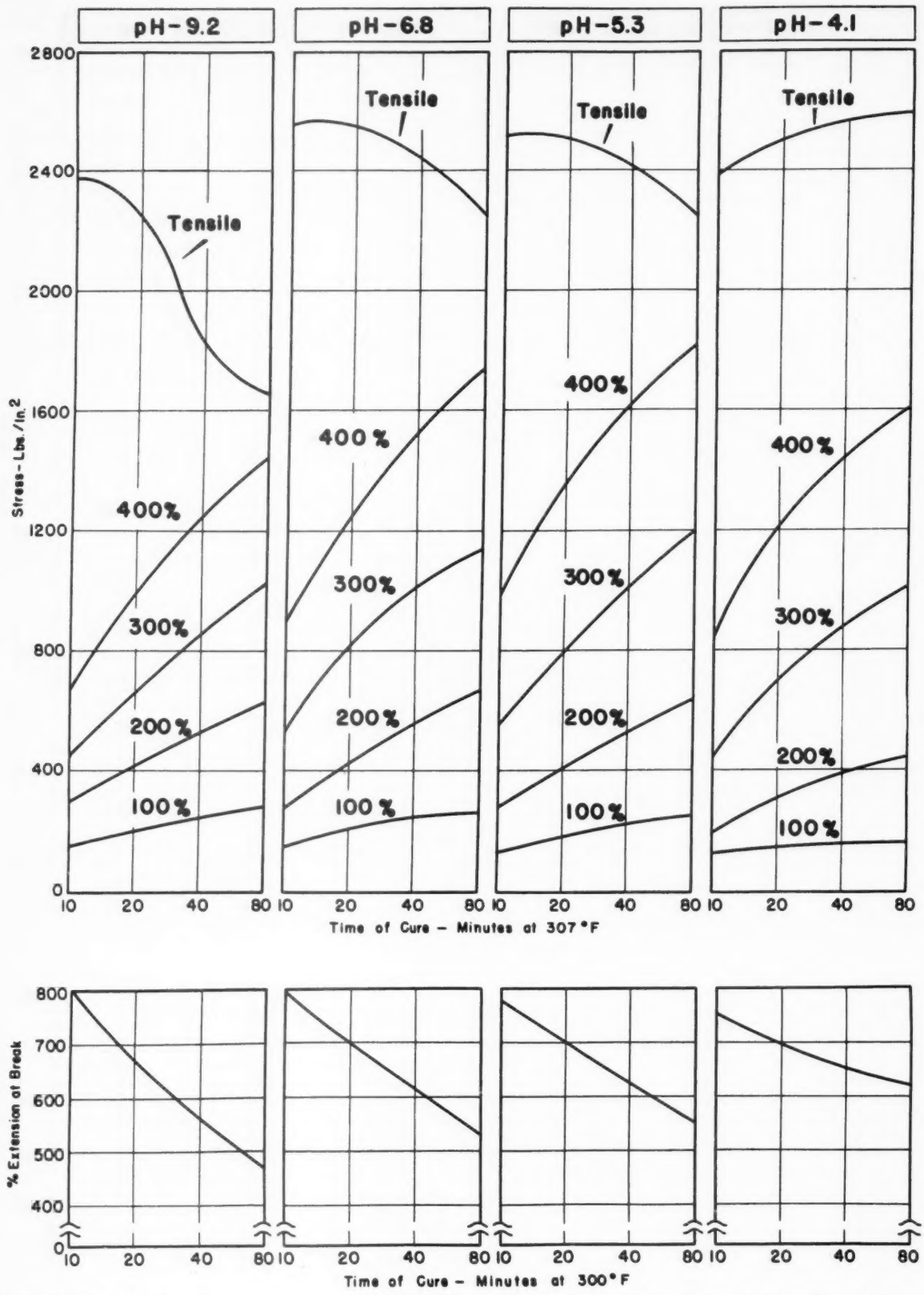


FIG. 10—Extent of surface oxygen or pH of SRF black and its effect on the vulcanizate properties of heat-treated Butyl systems.

state of surface oxidation of carbon black makes no contribution to reinforcement of GR-S or natural rubber. Cines *(9)*, at a much later date, reported that oxidation of furnace carbon presented no advantages over a regular furnace carbon in "cold rubber" GR-S reinforcement. It may be that a diene type rubber requires much less surface oxygen on the carbon black to produce desirable heat treating results than does Butyl. Furnace carbons as a class still contain fractional percentages of surface oxygen. If the reactive sites on the polymer are assumed to be the ethylenic bonds, then it reasonably follows that Butyl rubber would require a more active carbon surface.

ACKNOWLEDGEMENT

The authors are pleased to acknowledge the helpful assistance of Dr. J. Rehner, Jr., in reviewing the manuscript. Thanks are also due to Mr. W. S. Kephart for carrying out part of the experimental work.

LITERATURE REFERENCES

(1) Gessler, A. M., *Rubber Age*, **74**, 59 (1953).
(2) Zapp, R. L., *Ind. Eng. Chem.*, **36**, 128 (1944).

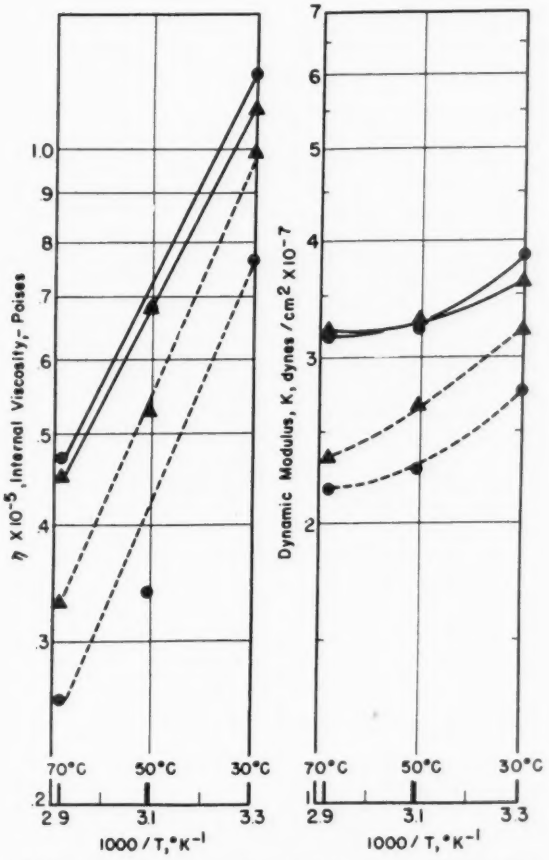


FIG. 9—Effect of surface oxidation of SRF black on the damping properties of untreated and heat-treated Butyl systems. (The dashed lines refer to oxidized SRF black, pH-3.6, and the solid lines to standard SRF black, pH-9.2. The triangles refer to untreated, and the circles to heat-treated mixes. Samples were cured for 80 minutes at 300° F.)

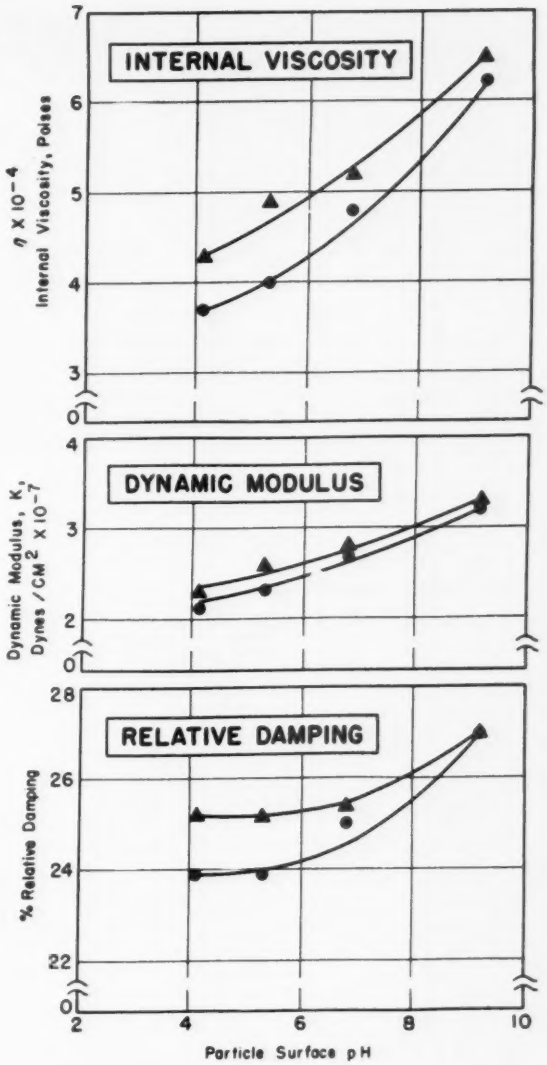


FIG. 11—Extent of surface oxygen or pH of SRF black and its effect on the damping properties of untreated and heat-treated Butyl systems. (The triangles refer to untreated, and the circles to heat-treated compounds. Samples were cured for 40 minutes at 307° F.)

(3) Sweitzer, C. W., and Braendle, H. A., *India Rubber World*, **107**, 468 (1943); "Columbian Colloidal Carbons," Vol. III (1942).
(4) Wiegand, W. B., *Ind. Eng. Chem.*, **29**, 953 (1937).
(5) Johnson, C. R., *Ind. Eng. Chem.*, **20**, 904 (1928).
(6) Baldwin, F. P., *Rubber Age*, **67**, 51 (1951).
(7) Flory, P. J., *Ind. Eng. Chem.*, **38**, 417 (1946).
(8) Rehner, J., Jr., Esso Laboratories unpublished data referred to in Figure 6 of paper by R. L. Zapp, *Ind. Eng. Chem.*, **40**, 1508 (1948).
(9) Cines, M. R., *Rubber Age*, **69**, 183 (1951).
(10) Stokes, C. A. and Dannenberg, E. N., *Ind. Eng. Chem.*, **41**, 381 (1949).
(11) Adams, J. W., et al, *Rubber Chem. Tech.*, **25**, 191 (1952).
(12) Wiegand, W. B., *India Rubber World*, **105**, 270 (1951).
(13) Wiegand, W. B., and Snyder, J. W., *Rubber Chem. Tech.*, **12**, 298 (1939).

Hewitt Rubber's New Vulcanizing Department

By ETHELYN M. WELLER

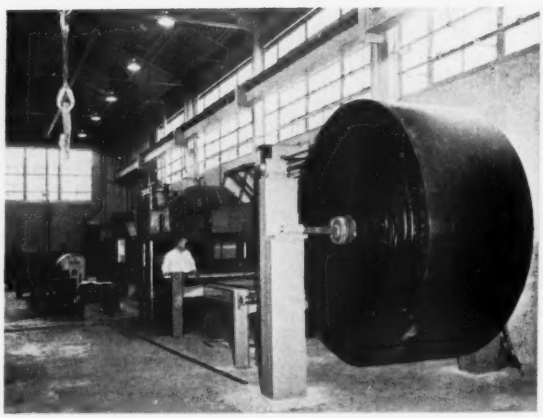
THE Hewitt Rubber Division of Hewitt-Robins, Inc., in Buffalo, New York, has recently completed a new million dollar vulcanizing department as an addition to this plant. About a quarter of this expenditure was for the erection of the building, the balance of the costs were for new equipment. The purpose of this program was to increase by 35 percent the production of conveyor belting, and also to give the necessary room to handle belting in 72-inch widths. With previous equipment it had been possible to handle belting only up to a 60-inch width. The 72-inch belts are used extensively for sand, gravel and in mining operations and demand for this width necessitated the installation of the new equipment.

15-Ton Hydroscale Installed

The new department covers 12,000 square feet of floor space and has two L-shaped bays, all on the ground floor. Ceilings are very high to allow operation of a 20-foot crane in each bay. These Whiting cranes have a 15-ton capacity and can handle rolls of belting as large as 12 feet in diameter and 60 inches wide. A Hydroscale, also with a 30,000 pound capacity, has been installed and may be used with either crane.

Use of the Hydroscale considerably reduces the labor problem in the handling of belts and is therefore much more efficient than when rolls of belting are weighed by other methods. The Hydroscale can be supported with the crane hook, with the materials to be weighed under it. Thus, the rolls of belting are between the crane hook and the yoke for the pick-up and so in one operation the rolls can be picked up, moved as required and weighed.

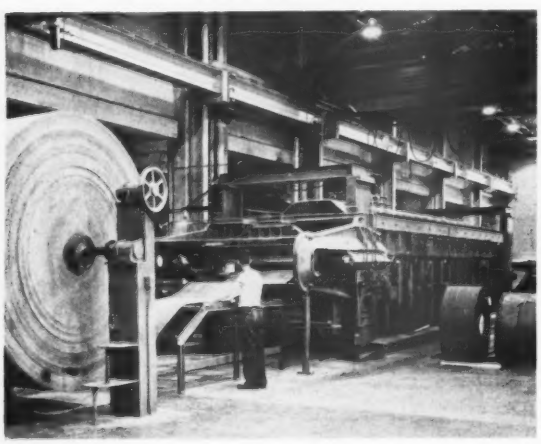
Presses for conveyor belt vulcanizing are 72 inches by 35 feet and have an inspection and repair section at one end. The space between the let-off and the presses is 25 feet, thus allowing inspection and repairs before a belt is vulcanized. There is one larger press—a 78-inch by 35-foot conveyor belt vulcanizing hydraulic press. Many of the features of this new press, the first of its size ever used by Hewitt, were designed exclusively by Hewitt engineers, and this press adds still further to the company's ability to now make the wider belts.



View of one of the new inspection and repair presses at the Hewitt Rubber plant. These presses add considerably to the general efficiency of the department.

Along one side of the new department, across the aisle from the large press, are two new repair and inspection presses—72 x 48 inches—and another of these units is to be added later. A special feature of these presses is the fact that they can be opened on one side for the removal of materials. Another is the fact that different size beltings may be processed in short lengths, or as an endless belt. These presses add considerably to the general efficiency of the department.

All the new presses are hydraulic, with a water pressure of 1800 pounds to each. Pressure, temperature and time cycles of each press are controlled by Taylor instruments mounted on panels beside the machines. Essential accumulator service ram sizes vary and so does the pressure in the different presses.



Over-all view of the new giant 78-inch by 35-foot hydraulic vulcanizing press installed at the Hewitt Rubber plant in Buffalo, N.Y., for conveyor belting.

New Fabricating Table Planned

In another part of the new department a space has been left vacant where a new "making" or fabricating table is soon to be installed. This table is to be built by the Elliott Company and will have incorporated in it many exclusive Hewitt features. The new table will cost about $25,000. This equipment is necessary to enable Hewitt to handle the new high tensile fabrics such as nylon, rayon and treated cotton with which it is possible to produce thinner belts of fewer plies than with older methods and materials. With the new table, plies of various materials may be put under a uniform tension by a complicated direct control system. It is

expected that the new table will be completed and ready for use in the near future.

These thinner belts, because of the fabrics of which they are made, are more flexible, trough more easily and so require less operating power. They are in demand by many Hewitt customers who are finding that these belts offer special advantages for various operations.

The new building is well constructed of steel with a brick facing. It adjoins a section of the older building and is entered through several arches cut through between the big steel supports of the original wall. There is a thick cement floor and the walls and ceiling are painted in two shades of aqua, the lower portion of the walls being in the darker color. This color lends itself well to both natural and artificial lighting.

Deep windows with daylight blue panes are along outside walls. These panes prevent the ultra-violet rays of the sun reaching the rubber products, some of which could be harmed by direct bright light.

Overhead lights are of a deep-bowl incandescent type. It was explained that these are better than fluorescent tubes, the light from which is too soft. A very bright light is needed for the work in the new section and only incandescent lights are suitable.

The building has excellent ventilation. The presses create considerable steam heat but this is removed by eight large fans, at the rate of over 200,000 cubic feet a minute in summer and as is required to maintain a suitable working temperature in winter. Three of these power roof ventilating fans are Davidsons, each with a capacity of 22,000 cubic feet a minute; the other five are Hartzells, with a capacity of 27,000 cubic feet a minute each.

Giant Shipping Dock Is Feature

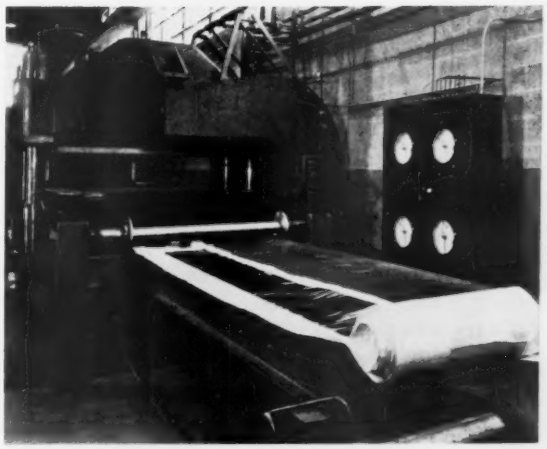
A very important feature in connection with the change in the building is a new shipping dock. This can accommodate five trailer trucks and is now used as the main dock for all plant shipping. A large door in the east wall is 15 feet high by 10 feet wide and can allow passage of a 15-ton crane if placed on a low-boy truck and used for loading purposes.

Leading to the shipping dock from the street is a wide heated driveway. This is of concrete, 120 feet long and with a gradual decline of 6 feet from the street level. It is heated by steam pipes installed beneath it. The heat is automatically controlled so that it comes on only when the temperature reaches a degree that would make the surface of the driveway freeze and so endanger trucks entering or leaving the plant. There is no extra expense involved in this beyond its installation, as it operates on waste steam.

This is not a new venture for Hewitt as another heated driveway was installed several years ago and proved very satisfactory. In fact, that driveway was the first of its kind in the area and was the reason for several others being installed in Buffalo by large plants and others where the problem of slippery driveways was serious. This new Hewitt driveway has replaced the older one.

There are also plans for a more modern materials handling system in the plant. This is now being surveyed throughout the various departments and the new system will include pallets and other important materials handling equipment. Interest in this project has been stimulated through the installation of the new shipping dock and the fact that there is now more space to move about in the departments.

The entire Hewitt-Robins Buffalo plant operates on 25 cycle current. When the new building was added, with its presses and other equipment, the consumption of electricity was increased considerably, but no additional power could be purchased in the area at the 25 cycle rate. Buffalo has operated on 60 cycles for several years. As the installation of the 25 cycle equipment represented quite a large outlay financially, Hewitt decided that the only practical solution for this power problem was to erect its own sub-station, where the current could be reduced from 60 cycles to 25.



Close-up view of one of the new inspection and repair presses. The Taylor instruments on the panel at right control temperature, pressure and time cycles.

Accordingly, this was done and a sub-station was built on Hewitt property behind the Restfoam Division of the plant. The work was done by the Buffalo General Electric Company, and since the completion of the station Hewitt purchases electric power at the higher voltage and reduces it to the 25 cycles for which all its machines and other electrical installations are equipped. This includes all operations in the Restfoam Division. As a result of the new station no changes were necessary in the many power-using installations of the plant, while over a period of time these savings will be augmented by the reductions in the costs of the power itself.

So, with the new vulcanizing department, the substation, shipping dock and driveway and other newly adopted policies, Hewitt welds one more link in the chain of progress that has made it one of America's leading producers of rubber products. It is known throughout the world for its conveyor belts, rubber hose and other products, which are continually being improved and made to meet all modern demands. The new building just completed is only one example of its efforts to always try to manufacture merchandise of top quality of modern design and materials.

A simplified addition to its line of **Thy-mo-trol packaged electronic** adjustable-speed drives has been announced by the Control Department of the General Electric Co., Schenectady, N. Y. The new unit is available for ¾ to 3 hp drives.

New in the materials handling field is the **Loadmobile Tier Lift Truck,** manufactured by the Market Forge Co. of Everett, Mass. It is designed for servicing large presses with jigs, dies, etc.

Editorials . . .

Fair Value

WITH the appointment of Holman D. Pettibone, Chicago banker, as the third commissioner, as announced elsewhere in this issue, the Rubber Producing Facilities Disposal Commission is ready for action. This is the commission charged with arranging for the sale of the government-owned synthetic rubber producing facilities to private industry by January 31, 1955. Mr. Pettibone, who is also acting as chairman, and the other two commissioners, Leslie R. Rounds and Everett R. Cook, are serving on a per diem basis. The commissioners have already surrounded themselves with an efficient staff, and advertisements inviting proposals from industry for specific facilities have already appeared.

The members of the Rubber Producing Facilities Disposal Commission have our full sympathy in the job which lies ahead. They will direct negotiations for the sale of property with an over-all value of about $500,000,000. Some of the terms involved are spelled out in the legislation which created the commission. They must get full, fair value for the plants, must make certain that national security is amply protected and must secure approval from the Attorney General on each specific sale to make certain the anti-trust laws are properly observed. And because of last-minute amendments tacked on to the Shafer Bill, the fact that either House of Congress possesses veto power could conceivably result in all of their work going for naught. It is quite within the realm of possibility that the 1955 Congress could be a hostile one.

As we stated before, no special difficulties should be encountered in two of the three major facets involved in disposal of the synthetic rubber facilities, namely, the protection of national security and avoidance of monopolistic operation. There are ample safeguards in both of these cases. The remaining facet, that of securing a "full, fair price," is one which might prove a stumbling block. Should either House of Congress determine by majority action that any proposal for an individual facility or the over-all total for all facilities is inadequate, the entire disposal program could be knocked into a cocked hat, and the government will remain in the synthetic rubber business for another extended period of time. This is a situation which neither the majority of Congressmen or the major portion of the rubber manufacturing industry regards with any special relish.

There are 24 facilities involved, including 13 copolymer units (one of which, the Institute plant, is in standby condition), 2 Butyl plants, 8 butadiene units, and 1 styrene unit. What the definite, current value of these plants is, is anybody's guess. It is probable that a current value on these facilities is included in the Parsons Engineering Report, which was made for the Reconstruction Finance Corporation some time ago, but this report is a closely-guarded secret. No estimate of the value has ever been publicly disclosed by any of the rubber industry's leading executives. Two figures have been mentioned by Rep. Paul Shafer (Rep., Mich.), author of the disposal plan, namely, $300,000,000 and $350,000,000, but these have been explained as "educated guesses," although they were determined after talks with members of the rubber field.

A group of Texas petroleum engineers have come up with some interesting figures in a recent issue of *Petroleum Refiner Magazine*. According to the article, the 24 facilities mentioned above represent a total investment of $438,643,000. Using Gulf Coast statistics, the authors estimate the plants could be built today for 80% of the original investment, or $352,000,000. They state flatly that if GR-S is to continue to be sold for 23c a pound then no more than 45% of the original investment, or $198,000,000, can be paid for the facilities. They argue that if 70%, or $308,000,000, is paid, then the price of GR-S would have to be advanced to 27c or 28c a pound. According to their figures, the 27-28c figure would be necessary if new plants were constructed now equivalent in productive facilities to the existent facilities. On the basis of these figures they conclude that the "fair value" of the 24 facilities involved lies somewhere between $198,000,000 and $308,000,000.

Government officials were quick to disagree with these figures. They point out that RFC has kept the plants up to date with constant improvements, that the cost of building has risen sharply, and that new production methods are not yet ready for trial. In their opinion, it would still cost approximately $440,000,000 to build 24 new equivalent plants. Whereas the Texas petroleum engineers regard the synthetic rubber units as "venture capital" investments, the government men insist that because of the firm competitive position of synthetic rubber the plants can be regarded more as long range investments which will pay for themselves over a longer period. Because of these factors, they are in complete disagreement with the low figure of the "fair value" reached.

Determination of the proper "fair value" is, therefore, one of the major headaches facing the Rubber Producing Facilities Disposal Commission. There are no simple equations to apply and yet the ability of the commission to induce such bids, or "proposals" as the law refers to them, will spell the success or failure of the disposal program. All a dissident group in Congress has to do is raise the cry of "give-away," supported by a few obviously low bids, and government control of synthetic rubber will go on its merry way. This makes it expedient for rubber manufacturers and others to submit proposals which will stand up under close accounting scrutiny. We are not suggesting that over-bids should be made, but if private industry is to take over the synthetic rubber field some judicious thinking must be applied—and applied quickly.

NEWS OF THE MONTH

RUBBER STUDY UNIT ENDS LONDON MEETING, THIRD MEMBER NAMED TO NEW DISPOSAL GROUP

MAJOR developments of interest to the rubber industry within the past few weeks included the conclusion of a three-week meeting of the Management Committee of the International Rubber Study Group in London and the issuance of a report by that body calling for a three-point program to deal with declining natural rubber prices. The conclusions of the group were forwarded to all member governments for their consideration. In the United States, President Eisenhower completed the formation of the Rubber Producing Facilities Disposal Commission with the naming of the third, and final, member to the group. It was also revealed during the period that the United States is now faced with the prospect of declining sales in synthetic rubber. This may indicate further cuts in GR-S production, it is believed by some. Reports from Indonesia which stated that bans on the shipment of rubber to Communist China may be dropped have disturbed authorities in Washington as well as other nations in the Free World. And Vice-President Nixon, on a tour of the rubber-producing areas of the Far East, gave voice to sentiments that did not precisely fit the U. S. State Department's views on the over-all rubber situation.

The Management Committee of the International Rubber Study Group, at the conclusion of the London meeting on October 30, advanced a number of recommendations designed to bolster declining prices for natural rubber. The suggestions put forward by the group included the following:

(1) Acceleration of replanting programs.

(2) Creation of new natural rubber stocks or additions to existing stocks, whether governmental or commercial.

(3) Action by the government of the United States to increase the price of GR-S, to re-examine its practices in stockpile rotation, and to revoke a directive issued in 1952 regarding the level at which mandatory consumption for synthetic rubber might be reimposed.

The report said the U. S. delegate agreed to transmit the three recommendations to his government, but that in his opinion prices of synthetics had "no connection with present price developments."

Buffer Stock Question

On the buffer stock question, the report said there was no change in the delegates' viewpoint since the last meeting in May on the necessity for a buffer stock agreement. The meeting forecast a surplus of natural rubber of 169,000 long tons by the end of 1953, compared to the 193,000 tons foreseen after the May meeting of the full study group. The actual surplus would be considerably less than the revised estimate because of additions to stockpiles during 1953, it said.

Collyer Asks Revocation

Following the recommendations of the Management Committee of the International Rubber Study Group, John L. Collyer, president of the B. F. Goodrich Co., issued a statement urging that the government revoke the directive which requires that rubber consumption controls be reimposed in this country if the use of GR-S falls below a rate of 450,000 long tons a year.

"Many natural rubber producers believe that this directive has the effect of limiting the demand for natural rubber in the United States, and that our Government is discriminating against our friends in the natural rubber producing areas," the Goodrich executive stated.

"It is clear there is a sufficient world demand for rubber of all kinds so there is no justification for any governmental action which will in any way prevent free and open competition between natural and synthetic rubber," he said.

Mr. Collyer asserted there is little likelihood that the usage of synthetic rubber in the United States will fall below a level which would jeopardize our national security. He noted, however, that in the event this should happen, "the present rubber act authorizes the President to impose such mandatory controls as he deems necessary."

Mr. Collyer also supported a suggestion of the International Rubber Study Group committee that our Government re-examine its practices of stockpile rotation. "We should be certain that our stockpile of natural rubber is used only for military and essential civilian security and that, under no circumstances, it is used to manipulate rubber prices," he said.

The suggestion that the government even consider a rise in the price of synthetic rubber brought an immediate and a sharp response from William O'Neil, General Tire president. Such a step, he said, shouldn't even be given any consideration in view of the fact that the government is already making from 15 to 16% on its rubber business.

"The government has been making a profit on the synthetic rubber operation because it has been operated by private industry for the government. This is something new and different for the government . . . because they are accustomed to losses," Mr. O'Neil added. "To raise the price of synthetic rubber would turn users away from synthetic and therefore run the risk of changing a profitable operation into a loss."

U. S. May Review Policy

The United States Government, meanwhile, under pressure from foreign producers, has agreed to take another look at several facets of its rubber policy, but little, if anything, is expected to come of it. It is generally felt in the trade that the rubber producers stand little chance of action on the recommendation that the price of synthetic rubber be increased.

The producers seem to stand a better chance of getting some action on the other two recommendations, one calling for a re-examination of stockpile procedures, and the other revoking the level at which mandatory consumption for synthetic rubber might be reimposed.

An interesting sidelight came about at a recent State Department meeting which was called to discuss matters brought up at the meeting of the International Rubber Study Group in London. The department had called in a group of top rubber executives, among them William O'Neil, president of the General Tire & Rubber Co. Mr. O'Neil brought along Dan A. Kimball, vice-president of the company and former Secretary of the Navy. Mr. Kimball was asked to leave the confidential meeting because he had not been cleared for security. The former Navy Secretary said he had clearance for other agencies but not the State Department. The depart-

ment said, however, the incident never would have happened if it had known that Mr. Kimball was coming.

Third Commissioner Named

Meanwhile, machinery for selling the nation's synthetic rubber facilities went into action with the swearing in of Holman D. Pettibone as the third member of the Rubber Producing Facilities Disposal Commission, which will dispose of the synthetic rubber plants. Mr. Pettibone, a Chicago banker, joins the previously appointed Everett R. Cook and Leslie R. Rounds.

In the near future, all three commissioners are expected to meet and choose a chairman. The committee has already named Ferris B. Thomas as secretary. Morton E. Yohalem, author of the Reconstruction Finance Corporation report to Congress on rubber disposal, is assisting the commission on a consultant basis. Harold W. Sheehan of the RFC Office of Synthetic Rubber is acting general counsel with Leonard J. Ralston assisting him.

In the few weeks since the White House announced the appointment of the first two commissioners, they have established close contact with the Justice Department, forecast as a key problem in getting disposal accomplished. Under the disposal law, the Attorney General must approve sales of the facilities in regard to anti-trust features. This action must nevertheless avoid committing the Justice Department in any future anti-trust lawsuits. By getting together with the Justice Department, the commission is said to have laid foundations for solving this tough provision of the law.

The commission members have also met with Representative Paul Shafer (Rep., Mich.) of the House Armed Services Committee and its chief counsel, John R. Blandford, to establish early lines of communication with Congress itself. Congress, according to the disposal law, has the right to reject the commission's work by vote of either house.

Synthetic Sales Slump

Meanwhile, the government is faced with the prospect of slumping sales in synthetic rubber. Preliminary estimates, based on 90 forward orders from major consuming firms, indicated that sales will drop from 43,000 long tons in October to 41,000 tons in November and 38,000 in December. Sales in January, 1954, however, are expected to pick up to 43,000 tons.

The fourth-quarter total of 122,000 tons is 14,000 tons lower than forecast only a few months ago by the RFC Rubber Industry Advisory Committee. The government agency ordered fourth-quarter output dropped to 122,500 tons, hoping to decrease its growing inventories.

The extent of the slump is indicated by consumption in past quarters. The 122,000 ton fourth-quarter compares with a 168,000 ton fourth-quarter in 1952, which followed a 149,300 ton third quarter. This year, demand totaled 173,000 tons in the first quarter, 174,000 tons in the second quarter, and 137,000 tons in the third.

RFC officials have declined to discuss the disappointing fourth-quarter demand, or what plans they have, if any, to further decrease production. The agency held nearly 80,000 tons of GR-S at the end of September, just shy of the 85,000 ton limit set on government inventories by the Bureau of the Budget. RFC had hoped, by setting production well under sales, to cut its inventories to about 65,000 tons on December 31.

It is now believed that RFC will miss that goal unless production is sliced or sales are swollen by supplementary orders from the agency's larger customers. Under a new sales policy initiated in October, any orders placed after October 15 for delivery between November 1 and January 31, 1954, carry a ¼c a pound penalty if RFC accepts them in the first place.

The new sales policy required the larger consumers to place firm binding orders covering November, December and January requirements with RFC by October 15, the first time that the agency had required binding orders so far in advance. The trade believes that there is a possibility that the larger consumers are playing it cautiously, counting on filling additional requirements by either buying more natural or coming back to RFC for more GR-S.

The ¼c penalty shouldn't prove a major deterrent, with the lower cost oil-extended synethic rubbers selling at about the same price range as the lower grades of natural rubber used by tire manufacturers.

Conditions in Far East

Far Eastern rubber-producing areas are seriously disturbed over falling natural rubber prices, and repercussions continue to hit the free world. Both the U. S. State Department and the Indonesian Embassy in Washington, for example, are reported to be in the dark as to whether Indonesia seriously intends to sell rubber to Communist China.

State Department officials said it is still "too early to comment" on press dispatches from Jakarta which recently stated that the Indonesian government had announced plans to drop its two-year old embargo on the sale of rubber to Red China. The announcement from Jakarta had stated that Indonesia would send a trade mission to Red China to arrange the exports. It was charged that American policies were responsible for the current depressed rubber market, echoing a formal protest previously made to the State Department early in October.

The Indonesian Embassy in Washington said it had no information about a mission to Red China, other than plans, long in the works, to send a trade mission to that country to discuss the possibility of a resumption of pre-World War II trade relations between the two countries. Exports of rubber were a minor item in the pre-war trade pattern, but presumably would get more attention now in view of the increased industrialization which has taken place in China since the war. The Indonesian Embassy reported that it has cabled Jakarta for clarification of the report and the State Department is doing likewise.

Indonesia is a signatory to a United Nations Resolution, adopted after China entered the Korean conflict, banning shipment of rubber and other strategic materials to Red China. At that time, heavy U. S. demand for rubber led to skyrocketing prices, but with slackened demand the price since that time has dropped considerably. In recent weeks it has been reported that the Indonesians are becoming increasingly restive over the depressed condition of the market, with the United States shouldering most of the blame for the decline.

As a result of the Indonesian report to sell rubber to Red China, Ceylon rubber producers predicted a rise in world prices. They believe that with rubber going to Red China, plus declining production, rubber available to traditional buyers will be less, resulting in a strengthening of the price structure if not actual increases in the prices.

Nixon Touring Far East

In the meantime, Vice-President Richard Nixon has been visiting the rubber-producing areas of the Far East. A press report from Kuala Lumpur, Malaya, reported that Mr. Nixon had stated that stabilized rubber and tin prices over a period of years are essential for Malaya and other South Asian countries. He explained that he could not commit the U. S. government on policy, but he would make rubber a major point of his report to officials when he returned home.

The report of Mr. Nixon's statement in the Far East was greeted with some alarm by the State Department which underlined the fact that he was speaking as an individual and giving only a personal opinion.

The falling rubber prices have created a critical situation in Malaya in the opinion of Brigadier General Harry K. Dimoline, retired British Army officer who is now secretary of both the United Planting Association of Malaya and the Rubber Producers' Council. General Dimoline, on a recent visit to Akron, stated that the price drop is most serious not only as it relates to living conditions, but for the country, too. He explained that more than 50% of Malaya's revenue comes directly or indi-

Oil Content in GR-S

According to the Department of Commerce, beginning in 1952, the oil added to GR-S has been counted as rubber. Oil was added in 1951, but was not counted as rubber at that time. The amount of oil added in GR-S production in the last 2½ years has increased rapidly, the department states. In the first half of 1951, it is estimated that 1,231 long tons of oil were used. In the last half of that year, 4,533 long tons were used. In the first half of 1952, 5,750 long tons were used, while in the second half of the year, 9,352 long tons were used. In the first half of this year, the department stated, 19,065 long tons were used.

rectly from the tax on rubber which is graduated according to price.

One out of every four people in Malaya, he declared, depend on rubber for a livelihood. He also stated that workers on the plantations have taken four pay cuts this year, and for these reasons the need for immediate action is imperative. Communist infiltration, he stated, will also be accelerated by the fall in prices.

It has also been reported that Ceylonese rubber interests are strongly opposed to a recommendation by the International Bank for Reconstruction and Development that no more land in Ceylon should be brought under rubber cultivation. The bank made the recommendation two years ago when its representatives reported on the economic and agricultural position of Ceylon. The Ceylonese government recently decided to obtain the views of rubber interests and the government rubber controller has received an avalanche of protests on the bank's recommendation.

The Low Country Products Association of Ceylon, which is the premier Ceylonese planting organization, has informed the rubber controller that the Ceylonese government should enter into an international agreement with the other rubber-producing countries before accepting the bank's recommendation and has strongly urged the government to reject it. The government is reported to be still undecided, but it is believed by some observers that it will eventually adopt the recommendation.

Commerce Department Rubber Unit

The Business and Defense Services Administration (BDSA) was recently created by the Department of Commerce to take over the functions of five offices in the department plus the residual defense and mobilization functions of the former National Production Authority. Twenty-five commodity divisions have been set up under BDSA, including the Chemical and Rubber Division. N. E. Hathaway is director of the division, with L. B. Kilgore as deputy director and C. C. Concannon as industry specialist. E. G. Holt, who has had a long and distinguished career on rubber activities with the Department of Commerce, is assistant director for rubber. Members of the Rubber Branch, which functions as part of the Chemical and Rubber Division, include S. E. Overly and H. W. Julian, the latter on Navy liaison.

Elected Stein-Hall President

Lawrence Gussman, formerly vice-president in charge of manufacturing and technical divisions of Stein, Hall & Co., Inc., New York, N. Y., has been elected president of the company succeeding Morris S. Rosenthal, who recently resigned as president and director, as well as director of Stein-Hall's affiliated companies. Mr. Gussman is also president of the Stein-Davies Co., a manufacturing subsidiary of Stein-Hall.

Take a long time for this copy of RUBBER AGE to reach your desk? Use the coupon on page 313.

DODGE AND POWERS PROMOTED TO VICE-PRESIDENTS BY GENERAL TIRE

Howard M. Dodge

John E. Powers

General Tire & Rubber Co. has announced the promotion of John E. Powers and Howard M. Dodge to vice-presidents. Mr. Powers had been serving as general sales manager of plastics and special products, while Mr. Dodge had headed the Mechanical Goods Division. Mr. Powers has been in the tire industry since receiving his B.A. from Harvard University in 1925, mainly in executive sales capacities. He joined General Tire in 1934 as a territory sales representative. In 1939, he was promoted to assistant eastern division sales manager, and in 1942 was moved up to manager of the New York branch. Mr. Powers came to the company's Akron headquarters in 1944 as a member of the sales executive staff, and in 1946 was named manager of automobile tire sales. In 1951, he was appointed trade sales manager.

Mr. Dodge, in the rubber business since 1914, is a veteran of the engineering, development, and production phases of the industry. Joining General Tire in 1936, he started the company's Mechanical Goods Division. A native of Sandusky, Ohio, he attended the University of Akron, majoring in mechanical engineering. He is a member of the Chemical and Ordnance Associations.

Erwin Loaned to Government

Howard R. Erwin, manager of the Louisville, Ky., plant of the Kentucky Synthetic Rubber Corp., has been loaned to the Reconstruction Finance Corporation as deputy director of the Office of Synthetic Rubber. Howard W. Cable, formerly associate plant manager, succeeds Mr. Erwin as plant manager in Louisville. Before joining Kentucky Synthetic, Mr. Erwin was associated with the Goodyear Tire & Rubber Co. in production and sales. He is a graduate in chemical engineering from Iowa State College. In his new capacity as deputy director of the Office of Synthetic Rubber, Mr. Erwin succeeds J. Ernest Miller, who has returned to his post with the B. F. Goodrich Chemical Co.

Davis Trial Date Set

The income tax trial of Poncet Davis, president of the Robbins Tire & Rubber Co., Tuscumbia, Ala., has been changed from November 16 to January 18 in Cleveland Federal Court, Cleveland, Ohio. Mr. Davis has been indicted on four counts of income tax evasion. The government claims that from 1945 through 1948 he paid $80,000 in income taxes while his tax bill should have been $820,000. Mr. Davis pleaded not guilty to the charges and posted a $10,000 bond.

AIEE Plans Winter Meeting

L. F. Hickernell, chief engineer for the Anaconda Wire & Cable Co., Hastings-on-Hudson, N. Y., has been appointed chairman of the Technical Program Committee for the Winter General Meeting of the American Institute of Electrical Engineers which will be held the week of January 18-22 at the Hotel Statler in New York City. Mr. Hickernell and his committee will supervise the daily technical sessions at the five-day meeting, at which members will review advances and developments in electrical engineering and allied arts. The Institute has a world-wide membership of more than 46,000. Mr. Hickernell is chairman of its Technical Operations Committee and a member of its Public Relations Committee.

Ferro Appoints Withington

Ferro Chemical Corp., Bedford, Ohio, has announced the appointment of the C. Withington Co., 29-28 41st Ave., Long Island City 1, N. Y., as sales agent for metropolitan New York, Western Connecticut and Northern New Jersey for their products of metallic soaps, driers, and vinyl stabilizers to the rubber, plastic and other industries. Warehouse stocks will be carried in Long Island City and in Newark, N. J. The appointment was effective as of November 15.

RUBBER-STICHTING HOLDS SYMPOSIUM ON RUBBER TECHNOLOGY PROGRESS

A symposium on "Progress in Rubber Technology" was held in Delft, Netherlands, on October 7 and 8 under the auspices of Rubber-Stichting. Although most of the papers were delivered by members of Rubber-Stichting, which is one of the technical groups of the International Rubber Research Board, several papers were contributed by other experts in the rubber field. The symposium was attended by 162 participants from 17 different countries. The symposium was the second of its kind to be held, the first having been held on July 2 and 3 earlier this year. Following the two-day symposium an "Inventors' Day" was held at the Rubber-Stichting building.

The first day of the meeting was devoted to the technology of dry rubber. Such questions as the practical aspects of the development of reinforcing fillers were discussed. It was noted that for the first time black and white reinforcing materials were looked upon as equal materials. Formerly, only carbon blacks were considered suitable. It was emphasized, however, that the development of white reinforcing fillers has been going on for some time now, and that their future possibilities seem to be as great as those of carbon black.

The latter part of the day was devoted to discussions of fundamentals important to the future development of rubber technology. It was emphasized, for example, that much progress has been made in recent years regarding the knowledge of mechanical properties and crystallization of high polymers.

The second day was devoted to latex technology with three lectures given on new production methods based on principles which are not as yet too clearly understood. The fundamental principle involved in these methods is that Hevea latex can be stabilized in such a manner that sundry chemical reactions and additions are possible without premature coagulation. The production of plastics materials by the chemical conversion of Hevea latex, which is now being conducted on a commercial scale in the Netherlands, attracted considerable attention. Other lectures dealt with standard production methods while still others treated with the uniformity of Hevea latex and the manufacture of foam sponge rubber.

Summary of the Lectures

Dr. F. Endter (Degussa-Werke) discussed the reinforcing fillers and pointed out that since carbon black and silicic acid differed so much chemically, any similarity should be sought in the physical construction of the two materials, particularly in their surface structure.

Dr. E. M. Dannenberg (Godfrey L. Cabot) discussed the carbon blacks separately. He demonstrated the significance of surface structure and particularly the porosity of the blacks in connection with the properties of carbon black mixtures. He also discussed how carbon blacks with a fixed specific gravity can be measured, and what their influence in rubber will be.

Dr. H. Westlinning (Degussa-Werke) spoke of the inorganic reinforcing fillers, indicating that the formula for vulcanizing, which does not differ much from the carbon blacks, should be determined empirically and separately for every grade of active white fillers. The mixing method is also of very great importance, he said.

At this point a discussion was held on the properties of rubber and it was emphasized that in order to properly understand the process of vulcanization, a knowledge of the converting properties of all compounding materials is essential. Methods of determining these materials quantitatively were discussed by Dr. W. Scheele (Kautschuk Institut der Technische Hochschule), with special attention paid to conductometrical titration.

Dr. G. Salomon (Rubber-Stichting) discussed the subject of rubber damping and stated that since the elasticity of natural rubber is better than that of synthetic, its damping qualities are less. Elasticity, he said, depends on the temperature and the rapidity of deformation and is best studied by means of the so-called relaxation spectra.

Dr. G. Schuur (Rubber-Stichting) pointed out that natural rubber, without carbon black, has great tensile strength in contrast with synthetic rubbers. This is caused by the fact that natural rubber crystallizes when stretched. Thus, he said, the mechanism of the crystallization of high polymers is very important for the knowledge of the behavior of stretched high polymers.

At the start of the latex discussions it was generally agreed that it is impossible to improve the properties of Hevea latex through the same procedures adopted for dry rubber. It was emphasized, however, that latex properties can be considerably enhanced through proper compounding and the addition of specific ingredients.

For example, Mr. G. Giger (Institut Francaise du Caoutchouc) described a compound based on forming a resin in the latex itself through the condensation of resorcinol and formaldehyde, this condensation taking place during the manufacturing operation. According to Mr. Giger, the mechanical properties of the latex are improved considerably with this method and the resultant compound can be utilized for the production of tires and conveyor belts with the addition of small quantities of other components. Tires made with this compound have small rolling resistance with the result that fuel economies can be realized.

The problem of fillers in latex was also discussed by Dr. de Vries (Rubber-Stichting) who stated that such fillers have an economical significance in that they often make it possible to produce less expensive end-products. He also stated that such fillers do not always deteriorate the mechanical properties of the latex nor those of the first wet gel. The influence of fillers on both Hevea latex foam and on the finished product was discussed.

The addition of carbon black to latex compositions was discussed by Dr. G. J. van der Bie (I.N.I.R.O.) who emphasized the fact that compounds prepared in this manner are far more easily handled than those prepared by traditional methods. He made the point that after coagulation has been effected, the latex can be worked up just as dry rubber.

Dr. H. C. J. de Decker (Rubber-Stichting) discussed the manner in which latex is used in the manufacture of plastics. He stated that several methods for this purpose developed by Rubber-Stichting have been put into use in the Netherlands. He outlined the use of chlorinated rubber as a paint vehicle and the use of hydrochloric rubber for monofilaments.

Dr. P. Braber (Rubber-Stichting) described some new developments in latex technology which were worked out in the laboratories of Rubber-Stichting. One of these developments had to do with the manufacture of hollow latex articles in molds covered with a coagulating agent. The fabrication of dipped goods with the use of a heat-sensitized latex or with the aid of a special coagulant was also discussed as was the covering of wire netting with an attaching rubber layer.

The manufacture of latex foam rubber was discussed by Dr. G. W. van Raamsdonk (Rubber-Stichting) who included the question of cost and the possibility of decreasing costs by the use of fillers or by special moldings. He also discussed special production problems, such as the stability of the foam before gelling, the methods of gelling and vulcanization.

Dr. G. M. Kraay (Rubber-Stichting), in a talk on results obtained to date in the fundamental study of latex, explained the behavior of different latices in various methods of fabrication. In this connection, he paid particular attention to the ions and their behavior.

Presentation of Rubber Specialties

"Inventors' Day" was held on October 9 and represented an endeavour to bring new developments of a more-or-less specialized character to the attention of interested parties. A number of these developments were explained by the inventors themselves, while others were the subject of general discussion.

The manufacture of "Recticel," a rubber product of a honeycomb-like structure, which is finding favor as an upholstering material, was described. Recticel is made from dry rubber and due to a special process, sheets of the material of any circumference can be made without extra cost for special molds. The "Holofol" process was also described. This invention is based on the principle that hollow articles, such as gloves and inner tubes, can be produced from masticated sheet rubber subjected to a special chemical-physical treatment.

Another invention discussed was the "Neidhart Suspension." This item is based on the application of rubber units pressed between two metal chambers of a certain shape. Due to the elasticity of the rubber blocks, it was said that this type of suspension opens a broad field for application in coach constructions and railway carriages. Still another covered the use of rubber for the valve mechanism in liquid conduits and stopcocks. Such construction was said to be particularly applicable where a high velocity of flow is an important factor.

The production of fabrics permeable to air using a printing press to apply the

rubber solution was described. The resulting fabrics, though not waterproof, are said to find special application in the footwear industry. Indestructible traffic posts, consisting of a rubber joint, connecting post and foundation, were also described. A threaded pin connects two rubber units to adjust the flexibility of the joint in accordance with current wind pressure. Still another invention discussed was a guide rope for motor cars and small vessels consisting of steel-wired rope with rubber joints. The joints are composed of a set of rubber cords covered with rubber tubing and are capable of absorbing all peak loads which may arise in towing operations.

"Inventors' Day" closed with a lecture by Dr. van Raamsdonk who showed a film on the use of rubber in building construction. He mentioned the application of "Duct-Tubes" for making tube-like canals in concrete. The unit is a hose with special plaiting which, after inflation, is put in position in the casing. After the concrete has set, the air pressure is reduced and the rubber tube can be removed if desired. New types of expansion joints were also discussed.

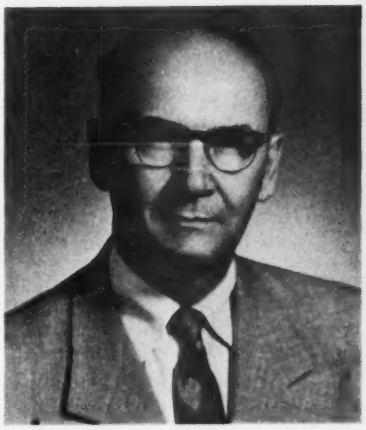
QM Activates New York Agency

Activation of the New York Quartermaster Purchasing Agency, 111 East 16th St., New York 3, N. Y., has been announced by Brigadier General R. P. Hollis, USA, who has been designated commanding general of the newly-established agency. The New York Quartermaster Purchasing Agency, following deactivation of the Armed Services Textile and Apparel Procurement Agency, has been given purchase responsibility for the procurement of Army, Air Force, and Armed Services Medical Procurement Agency textiles, apparel and related requirements. The functions and personnel of the New York Quartermaster Purchasing Office, heretofore responsible for the procurement of general supplies, have been transferred to the Purchasing Division, New York Quartermaster Purchasing Agency. Colonel Charles D. McColl has been named deputy to Brigadier General Hollis.

Asks New Stock Authorization

General Tire & Rubber Co. has asked shareholders to consider authorization of a $35,000,000 preferred stock issue at a special meeting to be held in Akron, Ohio, on December 3. W. O'Neil, president and chairman, proposed that 350,000 shares be authorized at a par value of $100. He noted, in a letter to shareholders, that the management and directors have no immediate intention of issuing any additional stock. "This action was taken to meet the challenges and opportunities offered competitive business", he said. Since 1942, he asserted, annual sales of General Tire and its consolidated subsidiaries have increased from $33,000,000 to an expected record $200,000,000 for the current fiscal year ending November 30. During the same period working capital has increased from $10,000,000 to $45,000,000, principally from long-term loans and retention of earnings in the business.

RUBBER AND ASBESTOS ANNOUNCES APPOINTMENT OF WEHMER AND BRUCE



Fred Wehmer

John W. Bruce, Jr.

Rubber and Asbestos Corp. of Bloomfield, N. J., has announced the appointment of Fred Wehmer as technical sales manager and John W. Bruce, Jr., as technical sales representative. Mr. Wehmer was formerly associated with the Minnesota Mining & Manufacturing Co. as technical director of the Adhesives and Coatings Division. Mr. Bruce was formerly associated with the Industrial Tape Corp. In his new capacity, he will be doing special work with the aircraft industry. Mr. Wehmer will take charge of the technical sales of the adhesive products manufactured by Rubber and Asbestos. The company is expanding its already extensive list of industrial adhesives and will intensify sales efforts in the industrial field. A program of development of new adhesives, such as those for the aircraft industry, is well under way.

Hold Power Distribution Conference

The Sixth Annual Power Distribution Conference, under the auspices of the Department of Electrical Engineering of the University of Texas, was held at Austin, Texas, on October 19-21. These conferences are held to provide an opportunity for persons engaged in this phase of engineering, whether in manufacturing, design or operation, to meet for the study of problems of common interest. Of special interest was a panel discussion on "Aluminum Conductors and Associated Problems," in which E. A. Casey of the Anaconda Wire and Cable Co. was a participant, and a paper on "Some Design and Application Considerations on Low and Medium Voltage Cable" by M. H. McGrath of the General Cable Corp. The latter paper contained considerable data on neoprene applications.

Witco Promotes John Wishnick

John H. Wishnick, formerly superintendent of the Chicago, Ill., plant of the Witco Chemical Co., has been appointed vice-president in charge of production and transferred to the company's headquarters in New York City. Mr. Wishnick became superintendent at the Chicago plant in 1952, having served two years as manager of the Oil Black Division of the Continental Carbon Co. at Westlake, La. He was graduated from the University of Oklahoma in 1948 with a B. S. degree in petroleum engineering. He is a member of the American Institute of Chemical Engineers, the American Chemical Society and the Chemists' Club of New York City.

Expanding U. S. Rubber Offices

According to plans recently announced by Rockefeller Center, Inc., the huge Center Theatre at 49th Street and Avenue of the Americas in New York City will be demolished to make way for a new 19-story air-conditioned office building. The offices of the new structure, which will provide 340,000 square feet of rentable space, will adjoin and be connected with the present U. S. Rubber Co. Building at the northeast corner of 48th St. and Avenue of the Americas. This building and the new structure will have a common entrance at 1230 Avenue of the Americas and U. S. Rubber has agreed to lease 120,000 square feet of space in the new structure, in addition to the 110,000 square feet it now occupies in the present building. This will permit U. S. Rubber to bring together all of the 1800 employees of its general offices in New York. A section of the engineering department, now in the R. C. A. Building, and the company's international division, now in Chrysler Building East, will move into the new space when available.

Seized Companies Merge

The Department of Justice has announced the merger of two corporations seized by the Alien Property Office as enemy property during World War II. Under the merger, General Aniline and Film Corp., one of the major producers of photographic supplies, will absorb the functions of its exclusive selling agent, General Dystuff Corp. The Justice Department controls 98% of General Aniline and 100% of General Dyestuff stock.

DUPONT SHIFTS HYPALON WORK TO RUBBER CHEMICALS DIVISION

Responsibility for further commercial development of "Hypalon" chlorosulfonated polyethylene has been assigned to the Rubber Chemicals Division of the Organic Chemicals Department according to a recent announcement by E. I. du Pont de Nemours & Co., Inc. The elastomer was originated and introduced by the company's Polychemicals Department. The company's aim in shifting future responsibility is to serve the rubber industry better by utilizing the Rubber Chemicals Division's long experience with neoprene and related products. All sales and research work will be taken over by the Rubber Chemicals Division. Production of Hypalon will continue in the present pilot plant facilities.

"Hypalon," with its superior ozone resistance and outstanding colorability, has created considerable interest in the rubber industry since its introduction in May, 1952. Anticipating widespread application of the new elastomer's unique properties, the Rubber Chemicals Division has established a new technical service group to assist customers in compounding the material. The new unit will be located at the division's rubber laboratory in Deepwater Point, N. J.

S. W. McCune, III, formerly sales supervisor in the New York district, has been named assistant sales development manager with headquarters in Wilmington, Del., and will have complete charge of Hypalon sales. Dr. Malcolm A. Smook, formerly associated with the Polychemicals Department, and who has figured prominently in the development of Hypalon at the DuPont Experimental Station, will head the new compounding and research group at the Deepwater Point rubber laboratory. Dr. Ward J. Remington, senior research chemist, and Ralph H. Sudekum, chemical and applications engineer, also from Polychemicals, will join Dr. Smook's staff.

E. Paul Hartsfield, formerly technical sales representative in the Akron area, has been named sales supervisor of the New York district, succeeding Mr. McCune in the neoprene sales group. F. Herman Fritz, Jr., previously supervisor of field service work at the Rubber Chemicals Division's Akron rubber laboratory, has been named to succeed Mr. Hartsfield as sales representative.

E. Paul Hartsfield

F. Herman Fritz, Jr.

Mr. McCune received his B. S. degree in chemical engineering from Princeton University in 1938. He then became a research assistant at the Mellon Institute of Industrial Research while continuing his studies at the Carnegie Institute of Technology. He joined DuPont in 1940 as a compounder in the Deepwater Point laboratory, and was later appointed sales correspondent in Wilmington. He had been sales supervisor in New York since 1951.

Dr. Smook received his B. S. degree in chemistry from the University of California in 1945, and his Ph. D. from Ohio State University in 1949. In that year he joined DuPont as a senior research chemist at the Experimental Station in Wilmington. Since that time he has worked almost exclusively on the development of Hypalon. For the past year he has been supervisor of the group working on applications for the material.

Dr. Remington was graduated from the University of South Carolina in 1932 with a B. S. degree in chemistry, and received his Ph. D. in analytical chemistry from Ohio State University in 1937. He spent nine years as an Industrial Fellow at Mellon Institute before joining DuPont in 1946 as a senior research chemist. Dr. Remington shared in the development of Hypalon and has presented several papers on the elastomer.

Mr. Sudekum was graduated from the Carnegie Institute of Technology in 1938 with a B. S. degree in chemical engineering. He later attended graduate school at both Carnegie Institute and the University of Delaware. Mr. Sudekum joined the company in 1946, and has recently been engaged in finding new applications for Hypalon.

Mr. Hartsfield received his M. A. in chemistry from Emory University in 1940. Following graduation, he joined DuPont as an analytical chemist at the Jackson Laboratory. Between 1942 and 1950 he was in turn development and control chemist at the company's Chamber Works; on loan as a shift supervisor at the Atomic Energy Commission's Clinton Laboratory; and in development and sales work at the Deepwater Point Laboratory. He was appointed Akron technical sales representative in 1951.

Mr. Fritz was graduated from Bucknell University in 1943 with a B. S. degree in chemical engineering. He then joined the Firestone Industrial Products Co. where he did development work on molded rubber products. In 1948, he joined DuPont as a chemist-compounder in the Mechanical Rubber Goods Group of the rubber laboratory. He was named supervisor of field service work at the Rubber Chemicals Division's rubber laboratory at Akron early in 1953.

S. W. McCune, III

Dr. Malcolm A. Smook

GOODRICH PRESIDENT CITED AS OUTSTANDING INDUSTRY LEADER

John L. Collyer, president of the B. F. Goodrich Co., has been cited as an example to American youth of an outstanding business leader whose vision and expert understanding of world affairs has been valuable to the nation. This appraisal appears in the October issue of the "National Biographic," a publication distributed to high school students and more than 2,000 institutions of higher learning in the United States. It is published jointly by the American Institute of Management and the Educational Division of "Who's Who in America."

The article recounts Mr. Collyer's business career and pays particular attention to his part in the development of the synthetic rubber industry in this country. It is stated in the article that when he took over the presidency of the B. F. Goodrich Co. in 1939, the company was not in robust health. According to the "National Biographic," the organization had lost money in 1931, 1932, and 1937. Profits in the intervening years had not been impressive either.

"The dramatic change in the company's fiscal performance since 1939," the article declares, "is only partly explained by a national economy operating under the forced draught of hot and cold wars. Last year, for example, the company was fourth in sales, but in the ratio of both profits to sales and profits to total assets, it easily topped the rubber field, a record it has maintained almost consistently since the end of World War II.

"In 1952, the company's net income was over $32,000,000, 5.2% of its dollar sales compared with Firestone's 4.5%, General's 3.9% and U. S. Rubber's 3.3%. B. F. Goodrich earnings amounted to 7.7% in relation to its total assets of $420,000,000.

According to a recent issue of "Ward's Automotive Reports," the article points out, "the company's profit has been considerably higher than the figures indicate. Following a more conservative financial policy than most of its rivals, the company's management has set aside more than $56,000,000 from income in the past 11 years for reserves . . . B. F. Goodrich's greatest progress has come in the last 13 years since the present management took over the reins of the company. It has been the biggest and the most profitable period in the firm's history."

Copies of the "National Biographic" are available on request to the American Institute of Management, 125 East 38th St., New York 16, N. Y. The Institute is a non-profit foundation devoted to the study and improvement of management practices and policies.

Building New Titanium Plant

A new plant for the manufacture of titanium dioxide pigments at Savannah, Ga., has been announced by the Calco Chemical Division of the American Cyanamid Co. The Chemical Construction Corp., a subsidiary of American Cyanamid, will construct the new plant. The plant will be operated by Calco Chemical.

Appointed Sales Engineer

Gardner L. Brown

Gardner L. Brown, well-known in the rubber reclaiming field, has been appointed a sales engineer by the Pennsylvania Industrial Chemical Corp. of Clairton, Penna. Before joining the company, Mr. Brown was associated with the Goodyear Tire & Rubber Co. where he served for ten years in Rubber Reclaim Development. He was also associated with the Compounding and Processing Sections at Goodyear and with the Goodyear Atomic Corp. Mr. Brown has been named on two recent patents—one concerned with the manufacture of non-staining reclaim and the other with the mill strainer. He holds two degrees from Columbia University, and is a member of the American Chemical Society and the Akron Rubber Group.

Bradley Elected Sheller President

Tom Bradley, formerly vice-president and a director of the Sheller Manufacturing Corp., has been elected president of the firm succeeding the late M. M. Burgess. Mr. Bradley has also been president of the Hardy Manufacturing Corp., a wholly-owned Sheller subsidiary. Other changes in the top management of the company include the election of Earl J. Cosgrove to vice-president. Mr. Cosgrove was formerly a sales manager and a director of the firm. Howard C. Baldwin, Detroit attorney, has been elected to the Sheller board of directors.

SPI Conference Postponed

Postponement of the Fifth Film, Sheeting and Coated Fabrics Division Conference, sponsored by the Society of the Plastics Industry, Inc., to the Spring of 1954, was recently announced. The conference, which has been an annual affair, was scheduled originally to be held December 3 and 4 in New York City. As soon as the Spring date has been determined, an announcement will be made to this effect and complete details of the program will be issued, the SPI stated.

Can't locate the office copy of RUBBER AGE when you need it? Use the coupon on page 313.

TIRE FIRMS SCORE VICTORY ON FTC TIRE DISCOUNT CEILINGS

According to recent reports, the tire companies have scored an important victory in their fight against a Federal Trade Commission ceiling on tire discounts. Acting Solicitor General Robert L. Stern announced that the Commission will not ask the Supreme Court to judge a procedural decision upholding the tire companies on the appeals court level. This means that FTC must file an answer to the tire companies on their charges that the so-called quantity limit rule will disrupt the industry and take away some of their best customers.

About eighteen months after the FTC answer is filed, the case should reach trial on the crowded District of Columbia Federal Court calendar. The FTC discount rule would forbid cutting prices on tires to buyers of more than one carload at a time to lower than prices paid by smaller customers. Buyers of private brand tires, large dealers and the major tire companies have asked the federal courts to throw out the FTC rule.

Federal Judge Matthew F. McGuire held it was too early to challenge the FTC order until that agency actually enforced it. But the Appeals Court agreed with the tire companies that the order could be judged beforehand. The companies said that gasoline distributors and mail-order houses would cancel their tire purchases if the FTC rule was allowed to stay on the books.

The FTC then had a choice of appealing to the Supreme Court against the Appeals Court decision, or returning to the district court to fight it out on the merits of the case. Government attorneys chose the latter course.

Plant Maintenance Show Plans

Maintenance problems in the chemical field will again get special attention at the Plant Maintenance and Engineering Show which will be held in conjunction with the Plant Maintenance and Engineering Conference in Chicago, Ill., January 25 to 28, 1954. Hundreds of new products, especially useful in the maintenance of chemical plants, will be on display. The exposition will take place at the International Amphitheatre, while the conference will be held at the Hotel Conrad Hilton. Two round-table conference sessions have been set aside for exclusive consideration of chemical problems. Particular types of equipment used in the chemical industry will get special attention at separate sessions. Advance registration cards may be obtained from Clapp & Poliak, Inc., 341 Madison Ave., New York 17, N. Y.

Masland Sportswear Unit Sold

American Pad and Textile Co. of Greenfield, Ohio, has purchased the assets of the Masland Sportswear Division of C. H. Masland & Sons Co. of Carlisle, Penna. The sale price was not disclosed. Equipment and inventories will be shipped to Greenfield. The division makes hunting and fishing clothes.

AKRON GROUP AND SPE SPONSOR INTERESTING JOINT SYMPOSIUM

"Rubber Resin Blends" was the subject of an interesting symposium sponsored jointly by the Akron Rubber Group and the Cleveland Akron Section of the Society of Plastics Engineers at their Fall Meeting on October 23 at the Mayflower Hotel in Akron. Moderator of the symposium was Dr. Frederick W. Stavely, manager of the Chemical and Physical Research Laboratories of the Firestone Tire & Rubber Co.

Other members of the panel included: R. C. Bascom (Goodrich Chemical), who discussed blends of phenolic resins with rubber; Willard de Camp Crater (Naugatuck Chemical), who discussed blends of styrene-acrylonitrile resins with rubber; C. R. Holt (Marbon), whose topic was rigid blends of styrene-butadiene resins with rubber; Harold S. Sell (Goodyear), who reviewed non-rigid blends of styrene-butadiene resins with rubber; Walter J. Smith (Firestone), who summarized blends of polyvinyl chloride with rubber; and Dr. A. J. Urbanic (General Tire), who discussed other blends, both present and future.

More than 500 members of both groups attended the afternoon technical session. After the general discussion, the panel members answered a number of questions from the floor. The symposium was followed by a social hour attended by 650 members and their guests. (EDITOR'S NOTE: A full report on the symposium will appear in a future issue of RUBBER AGE.)

Roy H. Marston (Binney & Smith), chairman of the Akron Rubber Group, announced the appointment of the following members to the Nominating Committee: Larry M. Baker (General Tire), chairman, and D. F. Belmey (Harwick Standard), and E. L. Stangor (DuPont). It was also announced at the meeting that the Akron Rubber Group membership now stands at 1330.

The after-dinner speaker was Charles W. Carvin, president of the Charles W. Carvin Co.

New RFC Hot Oil Masterbatch

The Office of Synthetic Rubber, Reconstruction Finance Corporation, has announced that in response to a consumer request, the number X-757 has been assigned to a hot oil masterbatch polymer. X-757 is described as follows:

"25 parts aromatic oil plus 100 parts base polymer—23.5% bound styrene, persulfate catalyzed, fatty acid soap emulsified, 122° F. reaction temperature, 68% conversion, hydroquinone shortstopped, staining stabilizer, salt-acid coagulated. Mean Mooney of masterbatch 48 ML-4 at 212° F."

As in the production of cold oil masterbatch polymers, the accepted interchangeable aromatic processing oils, Sundex 53 or Shell SPX 97, are to be used in the production of X-757. The processing oil used will be identified by its proper code on both the quality report and the container, in accordance with standard RFC practice. Purchase orders for the polymer were to have been submitted by October 30.

Coming Events in the Rubber Industry

Nov. 29-Dec. 4. A. S. M. E. Annual Meeting, Hotels McAlpin and Statler, New York, N. Y.

Dec. 3. Fort Wayne Rubber & Plastics Group, Hotel Van Orman, Fort Wayne, Ind.

Dec. 3-4. Society of the Plastics Industry, Fifth Film, Sheeting and Coated Fabrics Division Conference, Commodore Hotel, New York, N. Y.

Dec. 11 Boston Rubber Group, Xmas Party, Hotel Somerset, Boston, Mass.

Dec. 11. Detroit Rubber and Plastics Group, Xmas Party, Sheraton-Cadillac Hotel, Detroit, Mich.

Dec. 11. New York Rubber Group, Xmas Party, Henry Hudson Hotel, New York, N. Y.

Dec. 12. So. Ohio Rubber Group, Xmas Party, Miami Valley Country Club, Dayton, Ohio.

Dec. 15. Buffalo Rubber Group, Xmas Party.

Dec. 18. Chicago Rubber Group, Xmas Party, Morrison Hotel, Chicago, Ill.

Jan. 24, 1954. Philadelphia Rubber Group, Poor Richard Club, Philadelphia, Penna.

Jan. 27-29, 1954. Society of Plastics Engineers, Inc., Tenth Annual National Technical Conference, Royal York Hotel, Toronto, Ont., Canada.

Jan. 29, 1954. Akron Rubber Group, Winter Meeting, Mayflower Hotel, Akron, Ohio.

Feb. 5, 1954. Chicago Rubber Group, Congress Hotel, Chicago, Ill.

Feb. 11, 1954. Fort Wayne Rubber & Plastics Group, Hotel Van Orman, Fort Wayne, Ind.

Mar. 26, 1954. Boston Rubber Group, Spring Meeting, Hotel Somerset, Boston, Mass.

Mar. 26, 1954. Chicago Rubber Group, Furniture Mart, Chicago, Ill.

Apr. 2, 1954. Akron Rubber Group, Spring Meeting, Mayflower Hotel, Akron, Ohio.

Apr. 8, 1954. Fort Wayne Rubber & Plastics Group, Hotel Van Orman, Fort Wayne, Ind.

Apr. 14-16, 1954. Rubber Division, A.C.S., Spring Meeting, Hotel Brown, Louisville, Ky.

Apr. 30, 1954. Chicago Rubber Group, Furniture Mart, Chicago, Ill.

June 18, 1954. Akron Rubber Group, Summer Outing.

June 18, 1954. Boston Rubber Group, Summer Outing.

June 22-25, 1954. Institution of the Rubber Industry, Third Rubber Technology Conference, London, England.

Sept. 15-17, 1954. Rubber Division, A.C.S., Fall Meeting, Hotel Commodore, New York, N. Y.

Oct. 15, 1954. Boston Rubber Group, Fall Meeting, Hotel Somerset, Boston, Mass.

Dec. 10, 1954. Boston Rubber Group, Xmas Party, Hotel Somerset, Boston, Mass.

Thiokol Club Hears Jones

H. G. Jones, a leading authority on rockets, discussed "Jet Propulsion" before a meeting of the Thiokol Technical Club held in Trenton, N. J., on October 21. The meeting was preceded by a social hour and dinner. Mr. Jones, who is the Chief of the Rocket and Launcher Section in the Ordnance and Development Division of the Army, discussed the principal characteristics of rockets, turbojets, ram jets and pulse jets, emphasizing the great advances in aircraft and guided missiles made possible by development of these propulsion units. The types of fuel required to power these units were also discussed by the speaker.

Expanding Burlington Plant

U. S. Rubber Co. has announced an expansion of its plant in Burlington, N. C., which covers Lastex yarn with cotton, rayon and nylon for use in anklets and short socks for men, women and children. The expansion is expected to increase the output of the plant by 50%. Construction of a modern, two-story addition to the present building will be finished in December. U. S. Rubber will then move specially designed covering machines and electrical equipment from its plant in Providence, R. I. Other equipment is being purchased for installation in the two-story addition. John C. Markham, Jr., is superintendent of the plant.

SPEED UP EXTRUSION

STEP UP QUALITY

with

STATEX·M

FEF

The carefully controlled structure of this outstanding black will give you:

- *Faster production*
- *Smooth extrusion*
- *Sharp, clean edges even in feather-edged forms*

● A COLUMBIAN COLLO

COLUMBIAN CARBON CO. MANUFACTURER · **BINNEY & SMITH CO.** DISTRIBUTOR

SAF (Super Abrasion Furnace)

STATEX®-125

◆

HAF (High Abrasion Furnace)

STATEX-R

◆

MPC (Medium Processing Channel)

STANDARD MICRONEX®

◆

EPC (Easy Processing Channel)

MICRONEX W-6

◆

FF (Fine Furnace)

STATEX-B

◆

FEF (Fast Extruding Furnace)

STATEX-M

◆

HMF (High Modulus Furnace)

STATEX-93

◆

SRF (Semi-Reinforcing Furnace)

FURNEX®

COLUMBIAN CARBON CO. • **BINNEY & SMITH CO.**

MANUFACTURER DISTRIBUTOR

RUBBER COMPANY EXECUTIVES VOICE OPTIMISM ON FUTURE

Various statements by rubber company executives during the past month were in general agreement on the outlook for the industry in the coming year. In an address before the recent meeting of the National Association of Independent Tire Dealers, for example, E. J. Thomas, president of the Goodyear Tire & Rubber Co., pointed out that world rubber consumption this year is expected to hit a record-breaking high of 2,400,000 tons. He pointed out that in the United States alone, we are consuming rubber at the rate of 1,336,000 tons, while the rest of the world will use up the balance for an all-time industry high.

Mr. Thomas opined that sales opportunity in the retail tire field will be larger in 1954 and increasingly larger in the years ahead. He also declared that he had never seen as much tire building progress as has occurred in recent years. He also warned that proper action must be taken to maintain adequate reserve stocks to prevent a rubber supply shortage.

At the recent Homecoming Celebration marking Goodyear's 55th anniversary, Mr. Thomas declared that everything points to continued opportunities for companies which are alert, efficient and aggressive. Every study the company has made, he said, indicates a growth in car, truck and tractor registration, with greater consumption of rubber, and a wider use of the products the company makes.

In another address before the NAITD meeting, Harry L. Kincade, manager of camelback and repair materials for the U. S. Tires Division of the U. S. Rubber Co., stated that the retreading industry will increase in volume as long as it continues to produce quality retreads at a fair price to make a fair profit.

Predicts High Retail Sales

A. L. Freedlander, president of the Dayton Rubber Co., recently predicted that retail passenger tire sales in 1954 will be as good if not better than this year's. He attributes this to a record number of passenger cars that will be on the highway next year. These vehicles will need 50,000,000 tires in 1954, as compared with an estimate of 48,000,000 replacement tires sold in 1953.

Trucks on the road, he said, will require 9,000,000 tires, some 400,000 more than this year, his figures indicate. Mr. Freedlander said that no dip in the national economy is seen for 1954. However, it will be a highly competitive year and will test the ingenuity of all business, Mr. Freedlander declared.

John L. Collyer, president of the B. F. Goodrich Co., predicted recently that consumption of new rubber in this country during 1954 will be less than 5% below that of this year, and that consumption for 1953 will reach a record of 1,375,000 long tons. The substantial expansion of our economy, he said, is clearly evidenced in the nation's use of rubber and rubber products. Sales of tires of all types in 1953, he declared, may be as high as 102,000,000 units.

PROMOTION OF VAUGHAN AND VACCARO ANNOUNCED BY WITCO CHEMICAL

Melville C. Vaughan

Michael D. Vaccaro

Witco Chemical Co. has announced the promotion of Michael D. Vaccaro to eastern sales manager. Mr. Vaccaro has been active in the Witco sales force in Pennsylvania, New Jersey and New York. The company has also announced that Melville C. Vaughan, formerly sales representative, has been promoted to manager of the Cleveland, Ohio, office. A native New Yorker, Mr. Vaccaro joined Witco in 1937 as a member of the New York office Traffic Department. He is a member of the American Chemical Society, the New York Rubber Group, the Philadelphia Rubber Group and the American Chemical Industry Salesmen's Association. Mr. Vaughan joined Witco in 1932 as a chemist in the New York laboratory and was transferred to the Cleveland sales force in 1947. He is a graduate of the University of Illinois and is a member of the Rubber Division, ACS, the Akron and Buffalo Rubber Groups and the Cleveland Paint Production Club.

Expanding Crystex Production

Stauffer Chemical Co. has commenced construction of a new $1,000,000 plant for the manufacture of Crystex (insoluble sulfur) at Monongahela, Penna. The demand for Crystex, the company states, has greatly exceeded production available from its two existing Crystex plants at Richmond, Calif., and Chauncey, N. Y. The new plant, which will utilize a process developed and improved by Stauffer research, is scheduled for initial production in May, 1954. The company's Engineering Department is in charge of construction. Stauffer also has a large carbon disulfide plant at Monongahela, which adjoins the site of the new facilities.

Synvar Corp. Appoints Husen

Synvar Corp., Wilmington, Del., has announced the appointment of the W. R. Husen Co. as their special representative to promote the sale of Synvar's industrial type resins in diversified fields. The Husen company was recently formed by Dr. Werner R. Husen to specialize in the development and sale of various synthetic resins. Dr. Husen was formerly connected with Krumbhaar Chemicals, Inc., and has had wide experience and background in the synthetic resin field. His company is located at 125 Woodland Ave., East Orange, N. J.

600,000,000th Pneumatic Tire

Goodyear Tire & Rubber Co. recently announced completion of its 600,000,000th pneumatic tire to be built for motor vehicles. Lifted from the mold at the start of the company's 55th anniversary celebration, the symbolic milestone tire was of the huge earth mover type (size 27.00—33) used on certain off-the-road vehicles. Weighing approximately three-fourths of a ton and standing nearly seven and one-half feet high, the tire is priced in the neighborhood of $3,500. The 600,000,000th unit would be comparable in weight to about 66 popular sized passenger tires. The tire was on display during the anniversary event and was formally presented before a homecoming audience.

Foamtread Footwear in Formosa

H. W. Rollman, president of the Wellco Shoe Corp. and Ro-Search, Inc., both of Waynesville, N. C., has announced that an affiliated firm will begin manufacturing operations in Formosa in 1954. Agreements for manufacturing "Foamtread" and "Midas" footwear in Formosa were recently completed with the Hwa Sheng Rubber Manufacturing Co., one of the leading rubber manufacturers in Formosa. Production there will begin at a daily rate of 1,000 pairs, to be increased gradually to 5,000 pairs per day.

NEW YORK ELECTS OFFICERS; HEARS QUALITY CONTROL TALKS

The October 16th meeting of the New York Rubber Group held at the Henry Hudson Hotel in New York, N. Y., featured an election of officers for the 1954 season of the group and a talk by Simon Collier, director of quality control for the Johns-Manville Corp., New York, N. Y., on "An Approach to Quality Control". The following members were elected to office for the 1954 season:

Chairman, Joseph Breckley (Titanium Pigment); *Vice-Chairman,* S. M. Martin (Thiokol); *Secretary-Treasurer,* Peter P. Pinto (RUBBER AGE). John B. Barr (United Carbon) was elected sergeant-at-arms. The following members were elected to the Executive Committee for a three-year term: Henry J. Peters (Bell Telephone Laboratories), Donald F. Fraser (Rodic Chemical), Leon Werling (Manhattan Rubber), and Doran E. Sauser (Goodrich). The Nominating Committee consisted of Arthur J. Lang (H. V. Hardman), Roscoe H. Gerke (U.S. Rubber), A. R. Lewis (Monsanto), Kenneth J. Soule (Manhattan Rubber), and William S. Kane (Okonite).

Mr. Collier, in his talk, related what has been done in his company to obtain better results in the control of quality. He stated that at his company, quality control is thought of as a plan, whereby it is tried to insure the quality of goods shipped to customers to meet certain established standards.

Mr. Collier showed a 40-minute color film which Johns-Manville uses to train employees in the basic principles of the subject. Following the presentation of the film, Mr. Collier introduced Dr. Ellis R. Ott, professor of mathematics and applied statistics and chairman of the Graduate Program in Applied Statistics and Statistical Quality Control at Rutgers University, and Allen Crawford, assistant professor of applied statistics at Rutgers. There followed a most interesting period of questions from the floor which were answered informally by Mr. Collier and his two guests.

The meeting concluded with a cocktail hour, the serving of a dinner and a period of entertainment.

Washington Installs Officers

The Washington Rubber Group held its sixth annual banquet on October 19 at the Touchdown Club in Washington, D. C., with approximately 120 members and guests in attendance. The meeting featured the installation of new officers for the 1954 season of the group. The new officers are: *President,* George M. Riveire (Goodyear); *Vice-President,* Paul Greer (Office of Synthetic Rubber); *Secretary,* Alfred M. Anisman (Office of Synthetic Rubber); *Treasurer,* Ethel Levene (Bureau of Ships); *Recording Secretary,* Rachel J. Fanning (American Dental Association Research Fellowship). At the meeting, Mr. Riveire announced the new committee chairman which he has appointed: *Program,* John T. Cox; *Membership,* R. Harold Williams (Goodrich); *Publicity,* Rachel J. Fanning.

N. J. Zinc Promotes Silver

Bruce R. Silver

Bruce R. Silver, formerly manager of technical service for the New Jersey Zinc Sales Co., has been named technical assistant to R. G. Kenly, vice-president of the concern. Mr. Silver had been manager of technical service for the past twenty-four years. G. F. A. Stutz, associated with the company for thirty years, has been named manager of technical service succeeding Mr. Silver. He has spent most of his career with the company in the Research Department, becoming manager of research in 1951. In 1952, he was named assistant general manager of the N. J. Zinc Co. (of Pa.), at Palmerton, Penna., a position he held until his new appointment.

Connecticut Holds Outing

The Connecticut Rubber Group held its Eighth Annual Outing on October 3 at the Patterson Country Club in Fairfield, Conn., with approximately 185 members and guests attending. David McKean (Whitney Blake) served as chairman of the Outing Committee. Other committee members included Carl Larson (Whitney Blake), Guy DiNorscia (Sponge Rubber Products), Ward Fisher (Armstrong Rubber), George Sprague (Sponge Rubber Products), Thomas Skipp (U.S. Rubber), and Al Simon (Canfield Rubber). The program consisted of golf, softball and an egg throwing contest. George Jerolman and Jack Floria, both of Armstrong Rubber, took top honors in the egg throwing contest. The softball game between the Armstrong-Norwalk Rubber Corp. and the "salesmen" was won by Armstrong-Norwalk. In the golf tournament, Lou Manna (Sponge Rubber Products) took low net; F. F. Salamon (F. F. Salamon Co.) took low gross, while William Maguire (United Carbon) also took honors in the low gross contest.

Beaunit Mills Plant Sold

National Automotive Fibres, Inc., Detroit, Mich., has acquired the Cohoes, N. Y., plant of Beaunit Mills, Inc. The purchase of the three-story building containing 180,000 square feet of floor space was made in order to increase National Automotive's facilities for manufacturing automotive trim products.

BOSTON GROUP FALL MEETING FEATURES DROGIN AND BLAKE

The October 16th meeting of the Boston Rubber Group held at the Somerset Hotel in Boston, Mass., featured addresses by Dr. I. Drogin of the United Carbon Co., and Dr. John T. Blake of the Simplex Wire & Cable Co. Dr. Drogin spoke on "Extrusion Factors of Carbon Black Compounds", while Dr. Blake, Goodyear Medalist for 1953, repeated the Goodyear Lecture which he presented before the recent meeting of the Division of Rubber Chemistry, ACS, in Chicago. A full report on his address at that time appeared in the October issue of RUBBER AGE.

Dr. Drogin discussed extrusion requirements as dictated by the nature of different compounds and the size and the shape of the desired extrusions. The requirements for extruded industrial mechanical rubber goods were discussed. Extrusion properties and the factors regarding them were covered. He also discussed the effects on extrusions of various types of carbon blacks.

After the technical portion of the meeting, a dinner was served followed by an interesting talk on "Football as a Referee Sees It" by Paul Swaffield. Mr. Swaffield has been a football referee for the past 35 years.

Fort Wayne Hears Zabik

The Fort Wayne Rubber and Plastics Group held its first meeting of the 1953-54 season on October 1 at the Hotel Van Orman in Fort Wayne, Ind. The meeting featured the installation of new officers and a talk by C. J. Zabik, director of purchases of crude rubber for the General Tire & Rubber Co. Mr. Zabik spoke on "The Quality of Crude Rubber and the Outlook for Natural and Synthetic Rubber." Officers of the group for the 1953-54 season are: *Chairman,* Charles E. Cougill (Auburn Rubber); *Vice-Chairman,* Howard Rapp (Belden Mfg.); *Secretary-Treasurer,* Jack Carlson (Paranite Wire). Committees and their chairmen were also announced for the new season. These are: *Membership,* Eli Grossman (Tumpeer Chemical); *Program,* Hugh Tobey (U.S. Rubber); *Publicity,* Harold Anderson (General Tire); *Tickets,* Walter Beach (Schacht Rubber); *Nominating,* Jack Stiff (Binney & Smith); *Golf Outing,* Elmo Niccum (Goshen Rubber).

Dispersible Zinc Stearate

Rubba, Inc., New York, N. Y., has announced that it is now in full-scale production of "Liquizinc," a highly-concentrated dispersible zinc oxide. The product is recommended as an anti-tack agent which is absorbed by any subsequent milling or compounding operations. It has no detrimental effect on the cure of physical properties of the rubber, but speeds up dispersion of dry compounding materials. Liquizinc, the company states, allows stock to run cooler and smoother without mill-roll slippage. Three gallons of concentrated Liquizinc will make 50 gallons of dust-free tank dip.

SPI THERMOPLASTIC DIVISION CELEBRATES 1st ANNIVERSARY

The Thermoplastic Structures Division of The Society of the Plastics Industry, Inc., has just completed its first year of existence. This new SPI Division is concerned with rigid thermoplastic structures based on polyvinyl chloride and polyethylene plastics resins. Among the structural products made from rigid unplasticized polyvinyl chloride and polyethylene are ducts, vents, storage tanks, tank liners, hoods, housings, pipe, fittings and others. It is felt by this Division that many more applications are possible for rigid industrial structures made of these materials and that, as the Division's program expands, the growth of this new field will be rapid and well integrated.

To increase the number of these product applications, this division is working towards the establishment of quality standards, definitions of terms, methods for welding and the chemical testing of rigid unplasticized PVC and polyethylene sheet. Already there has been tentatively accepted by the companies participating in this Division's activities, the methods for welding as well as the methods for chemical testing of polyvinyl chloride plastic sheet.

Interest in this division has grown tremendously since representatives from four fabrication firms attended the organizational meeting in October, 1952. There are now six firms in the United States which are producing rigid unplasticized polyvinyl chloride resins. These firms are: Bakelite, Dow Chemical, Firestone Plastics, Goodrich Chemical, Monsanto Chemical, and Naugatuck Chemical. The two firms producing polyethylene resins are DuPont and Bakelite. In addition, there are approximately twenty-five firms fabricating sheets and structural products from these particular plastic raw materials. The activities of this new Thermoplastic Structures Division of SPI are under the guidance of its chairman, Dr. Raymond B. Seymour, executive vice-president and technical director of the Atlas Mineral Products Co., Mertztown, Penna.

Committees on specific subjects have been set up by this Division and their Chairmen are: *Definitions,* Willard Crater, Asst. Sales Manager, Plastic Sales, Naugatuck Chemical, Division U. S. Rubber Co., Naugatuck, Conn.; *Welding Techniques,* George Laaff, Director of Research & Development, Bolta Co., Lawrence, Mass.; *PVC Test Methods,* Lee Kuhn, Chemical Sales Division, Firestone Plastics Co., Pottstown, Penna.; *Polyethylene,* Dr. Alex Neumann, President, American Agile Corp., Bedford, Ohio; *Education,* C. E. Heil, President, Heil Process Equipment Corp., Cleveland, Ohio.

An Executive Committee and a Membership Committee, to correlate activities with other divisions of the Society and other organizations interested in chemical resistant plastics, is made up of the chairman of the division and the different committee chairmen.

Need a personal copy of RUBBER AGE? Use the coupon on page 313.

CINCINNATI RUBBER MANUFACTURING CONSTRUCTS OFFICE BUILDING

The photograph above shows the new office building of the Cincinnati Rubber Manufacturing Co. at Cincinnati, Ohio. The company recently moved into the new structure which is two stories high and measures 66 by 80 feet. It contains 55,000 square feet of floor space.

BWH Organizes Plastics Division

Boston Woven Hose & Rubber Co., Cambridge, Mass., has organized a Plastics Division which will devote itself exclusively to the development and manufacture of vinyl extrusions and new elastomeric products. Kenneth S. Goodyear, formerly associated with the U. S. Rubber Co., has been appointed manager of the new division. Mr. Goodyear had been associated with U. S. Rubber for 18 years, most recently as assistant production manager of the International Division. From 1949 to 1952, he was factory manager of the Heathall plant of the North British Rubber Co., Ltd., Dumfries, Scotland. Prior to his going to Scotland, he built and managed, for five years, U. S. Rubber's footwear plant in Cuba. His earlier background has been in industrial engineering, at which he worked from 1935 to 1942 in the Naugatuck, Conn., footwear plant of U. S. Rubber. From 1942 to 1944 he was with the Hodgman Rubber Co. Mr. Goodyear is a graduate of Middlebury College with a B.S. degree.

Bulletins on Tri-Clad Motors

The recently announced General Electric Line of Tri-Clad "55" motors, built in 1-30 hp ratings to latest NEMA dimensions, are described in three new four-color picture-story bulletins available from the company at Schenectady 5, N. Y. The publications contain complete descriptions of new maintenance, performance, and protective features of the line, and each includes a double-spread cutaway drawing of the motors. A 16-page booklet, GEA-6013, covers drip-proof models; enclosed motors are presented in GEA-6012, an 8-page booklet; and 14-page bulletin GEA-6027 describes the new gear motors. The Tri-Clad "55" will be available in large quantities after January 1, 1954.

G-E Specialty Instruments Tour

A streamlined exhibit trailer featuring demonstrations and applications of General Electric specialty instruments for increased productivity began a year's tour of the United States on November 2. According to company officials, the "Measurement-mobile" will make more than 250 stops in key industrial areas and will be inspected by more than 15,000 instrument users throughout the nation. The traveling exhibit will emphasize widening present-day applications of instruments in production testing, process and quality control, laboratory analysis, control and analysis of electric utility systems, and measurement for service and maintenance of equipment. About 40 instruments, ranging from atomic radiation measuring equipment to leak detectors having the "keenest noses in industry," will be available for on-the-spot demonstrations. Specialists familiar with all the displayed products will conduct tours for selected instrument users. The "Measurement-mobile" is 31 feet long and 8 feet wide. It is drawn by a ½ ton carry-all sedan. The exhibit contains its own power supply, heating system, and air conditioning unit.

Ball Brothers Buy Hygeia

Ball Brothers Co. of Muncie, Ind., has announced the purchase of the Hygeia baby bottle business from the Hygeia Nursing Bottle Co., Inc. of Buffalo, N. Y., with all transfers effective at the close of business on October 31. Acquisition of the Hygeia business, the third major expansion the company has made in the last six months, coincided with the announcement that the firm has formed a separate organization to serve the drug trades. This new sales and distribution organization will function within the Ball Consumer Products Division.

Miller Named to New Post

J. Ernest Miller

J. Ernest Miller has been appointed defense contract coordinator for the B. F. Goodrich Chemical Co., according to a recent announcement. With headquarters in the Cleveland, Ohio, office, Mr. Miller will also represent the company in connection with the forthcoming disposal of government-owned synthetic rubber plants. Mr. Miller recently returned to the chemical company after being on loan to the government for 17 months as deputy director, Office of Synthetic Rubber in Washington, D. C. Previous to this assignment Mr. Miller was plant manager from 1945-1952 at the Port Neches, Texas, synthetic rubber plant operated for the government by Goodrich Chemical. After being graduated by Wooster College, Wooster, Ohio, in 1933 with a B.S. in science, Mr. Miller joined the B. F. Goodrich Co. in Akron as a production worker. He held various jobs, including that of shift foreman, and in 1942 was transferred to the Goodrich-operated Lone Star Ordnance plant, Texarkana, Texas, as auxiliary loading superintendent. He was made production manager at Port Neches the following year, and in 1945 became plant manager of that plant. Mr. Miller is a member of the American Chemical Society.

Dow Completes Latex Plant

Dow Chemical Corp., Midland, Mich., has completed a plant expansion for the manufacture of styrene-butadiene latex used in both interior and exterior paints. The new facilities have already started production and are expected to result in a 25% increase in this type of latex production. A large tank storage farm to assure good delivery during the peak demand season has also been installed in the $10,000,000 plant. Construction of a plant for vinyltoluene is also nearing completion, the company stated.

Adhesive Products Corp., New York, N. Y., has announced the development of "Adweld Sequin Cement", the use of which makes possible the adhering of sequins and spangles to cotton, wool, jersey, velvet and other fabrics without the need of sewing. The cement is said to withstand both washing and dry-cleaning.

Forms Polychemicals Division

West Virginia Pulp and Paper Co., New York, N. Y., has announced the formation of a new division to broaden the commercialization of its lignin products. The new organization will be known as the Polychemicals Division and will be under the direction of Dr. Paul Wiley, who has been director of the company's Development Department at Charleston, S. C., since 1947. The new division will also be located in Charleston, and its activities will embrace all phases of lignin operations, including production, product and uses development, sales and administration. Lignin finds use as an extender in rubber latex compounds and as a dispersing agent in rubber.

Borden Acquires Polymer

The Borden Co. has acquired the American Polymer Corp., Peabody, Mass., and its plants in Illiopolis, Ill., Montreal, Canada and Sao Paolo, Brazil. William F. Leicester, vice-president of the Borden Co. and president of Borden's Chemical Division, said the acquisition is in line with the division's policy of expansion in the field of basic chemicals. The new purchase, he said, will operate as a separate department of the Chemical Division and its executive staff and sales force will remain with the company.

Goodyear Modernizes Power Plant

Output of power has been greatly increased and smoke and fly ash reduced to a minimum with completion of the final unit in an $8,000,000 power plant modernization program of the Goodyear Tire & Rubber Co. at Akron, Ohio. The latest unit, just completed at a cost of approximately $4,500,000, is a new power plant at the company's Plant 2. Previously completed was another major power plant project installation of equipment to eliminate fly ash at the firm's Plant 1.

Licenses British Manufacturer

American Polymer Corp. of Peabody, Mass., has announced the conclusion of a manufacturing license agreement with Scott Bader & Co., Ltd. of Northants, England. This manufacturing license permits Scott Bader & Co. to polymerize emulsions and solutions based on acrylic, vinyl, styrene, acrylonitrile and vinyl chloride monomers. Scott Bader & Co. will specialize in the products for the paint, adhesive, paper and flooring industries.

Promotions at E. P. Lambert

E. P. Lambert Co., dealers and brokers in crude rubber and liquid latex at Akron, Ohio, has announced that William H. Fallon, associated with the company for a number of years, has been elected secretary. Both Mr. Fallon and Alan A. MacCracken, vice-president of the firm, have been elected to the board of directors. E. P. Lambert is president and treasurer of the concern, while D. M. Lambert is vice-president.

Lannefeld Joins Heveatex Corp.

Theodore E. Lannefeld

Heveatex Corp. of Melrose, Mass. has announced the appointment of Theodore E. Lannefeld as its technical service representative responsible for Ohio and Michigan. Mr. Lannefeld, a graduate of Harvard College, has had many years of successful experience in similar work. After five years as a chemist for the A. C. Lawrence Leather Co., he transferred to the Monsanto Chemical Co. and was instrumental in organizing and building up its Textile Chemical Division. More recently he has served in a similar capacity with B. B. Chemical Co.

Polyethylene Price Reduced

Bakelite Co., a division of the Union Carbide and Carbon Corp., has reduced the price of its polyethylene resins and compounds by three cents as of November 2. The price of most polyethylene resins is now established at 41c per pound. In slightly more than a year, the company has reduced the price of polyethylene resins three times, from 49c to the present 41c. Ten years ago, when the material was first introduced, the price was about $1.00. The company also announced that the first of its three new plants for the production of the material will be in full production by December. The second is scheduled to begin producing during the first half of 1954. These two plants together will produce about 120,000,000 pounds annually, or about 85% of the current total industry production.

Packard Electric Expanding

The Packard Electric Division of the General Motors Corp., will soon begin work on a large expansion program in Warren, Ohio. Cost of the new program was not disclosed, but the project involves both new building construction and rearrangement of existing facilities to expand and extend the division's facilities to fabricate copper wire. Plans call for a new plant of approximately 200,000 square feet, which will house a copper rod mill for conversion of wire bar to rod as well as expanded wire drawing and magnet wire facilities. It is expected that the new program will result in the addition of several hundred employees.

COMMERCE DEPARTMENT RELEASES GERMAN SUMMARY ON VULCOLLAN

The U. S. Department of Commerce has made available Foreign Service Dispatch No. 82, unclassified, from Hamburg, Germany, dated August 7, which contains a summary, translated from the German, of the technical portion of an article on "Vulcollan" which appeared in the July 22, issue of the Dusseldorf *Industrie-urier, Wochenausgabe Technik und Forschung.* Farbenfabriken Bayer of Leverkusen, Germany, holds the patent rights for the development of Vulcollan, and is supplying the German rubber industry with the intermediate products necessary for its limited production.

The summary states that Vulcollan is produced by polyaddition, a procedure developed by Dr. Otto Bayer and his assistants, which is entirely different from polymerization and polycondensation. Some of its first applications were in the production of synthetic fibers (Perlon U), varnishes (DD varnishes) and light weight building materials (Meltopren).

Polyaddition, by which macro molecules may be formed by the addition-reactions of polyisocyanics or combinations of reactive hydrogen atoms, permits the construction of molecules "according to measurement," and, therefore, of synthetic materials with certain desired qualities according to plan. This procedure has been utilized in the production of Vulcollan, a highly-elastic, rubberlike material which calls for a net-like macro molecule consisting of linear giant molecules knotted together at long intervals.

Such a molecular structure, widely meshed with knots evenly distributed, can form a material of great solidity and tensile strength, the summary points out. Vulcollan is the first synthetic material which equals natural rubber or buna in these qualities and is superior to them in its resistance to abrasion and to change of structure and swelling when brought into contact with alcohol or gasoline. Vulcollan has also been found to offer considerable resistance to aging and exposure to the atmosphere. It therefore fills a gap among the elastic materials now known.

Vulcollan can be processed only to a limited extent by the same methods as natural rubber or buna. It is not advisable, for instance, to use the following methods at present followed by the rubber industry: rolling, extruding, or calendering. It may be rolled into sheets and then pressed but it has been learned that far better results may be achieved by newly developed procedures.

By using certain unrevealed components, it is possible to produce a semi-finished liquid Vulcollan which may be poured into molds; there the mixture is transformed into its final, net-like structure. A rubber-like, elastic synthetic capable of being poured is something quite new and opens up new possibilities for a more simplified production of complicated molded articles.

Woven materials may be coated with the liquid; when several layers of coated material are pressed together, the coating is then transformed into the same final structure. A pouring/pressing procedure has been developed in which semi-finished Vulcollan can be poured into forms and then cut into slices from which molded articles may subsequently be pressed. Further, tires, tubes and industrial rubber goods may be produced by a centrifugal casting procedure. Another innovation is that by adding certain solvents, thin-walled articles may be produced from Vulcollan by a dipping procedure.

According to the summary, Vulcollan has now proved to be practical for many articles. Wearing tests have revealed that Vulcollan heels have outlived 3,000 to 4,000 kilometers, while heels made of natural rubber have lasted for only 400 to 500 kilometers under the same conditions. Vulcollan soles have also been found to outlive the upper leather of shoes.

Solid tires made of Vulcollan used on the electric carts of foundries have proved several times more durable than those of natural rubber, the summary states. Fabric-free clutch units made of the material have revealed that they have twice the strength of rubber-fabric units. Bicycle tires produced by the centrifugal casting procedure and tested daily for three years have shown no signs of wear. Thin cable coatings of Vulcollan have shown no effects after considerable exposure to the air when other cables without this coating have already started to split, the summary concludes.

NEW GOODRICH "RIFFLE GRIP" CONVEYOR BELT SHEDS AND RETAINS WATER

A rubber conveyor belt made with a surface that sheds or retains water is now helping in the production of taconite, a valuable new source of iron ore, according to the B. F. Goodrich Co. Industrial Products Division. The belt automatically dewaters finely ground taconite as it conveys the wet material from storage tanks for processing. A simple adjustment makes the belt, called "Riffle Grip", retain water with equal ease. According to the firm, the secret of the belt's dual performance lies in its unique cover design. Molded rubber ridges which stand one-eighth inch high are formed in a continuous series of chevron patterns spaced several inches apart.

Operating on a predetermined conveyor incline angle, with belt idlers also placed at a specified angle, the chevron-like ridges channel water to the edges of the belt where it flows off. The material conveyed rests in the center of the belt and makes the trip free of water. Adjustment of the conveyor incline angle and the angle of belt idlers changes the chevron patterned surface into a series of horizontal carrying ribs which retain water on the belt and permit even distribution of moisture throughout the material, company officials pointed out.

Adjusted this way, the belt handles wet mixed concrete and similar moist materials on steeper inclines than can be negotiated on a smooth surface belt. The Riffle Grip design permits even distribution of the water throughout the material and prevents water from flowing to the center of the belt to dilute the material to the point where it will slide back on an inclined conveyor. Designed originally for gold dredging use in stacking wet rejects, Riffle Grip is also recommended for use in sand and gravel plants where wet sands and gravel must be conveyed up steep inclines for stockpiling.

Makes Available New Bulletins

Three bulletins giving formulas developed to obtain high quality, low cost GR-S compounds with high styrene resins are now available from the Organic Chemicals Division of the Dewey & Almy Chemical Co., Cambridge 40, Mass. Bulletin C-11 presents three formulas by which rubber shoe sole compounders in partciular can obtain high quality, low cost sole stock. Bulletin C-12 demonstrates the cost advantages afforded by oil-extended polymers, and Bulletin C-13 covers the use of GR-S 1502 "cold" rubber with Darex Copolymer 43G.

Promotions at Minnesota Mining

Promotion of four men of its Adhesives and Coatings Division was announced recently by Minnesota Mining & Manufacturing Co. John P. Albade was promoted to assistant industrial sales manager and will headquarter in Detroit. He joined Minnesota Mining as a sales engineer in 1947 and was sales manager of the Chicago division until his recent promotion. Promoted to the position of regional industrial sales manager, William A. Angus, Jr. will headquarter at Bristol, Penna. Mr. Angus joined Minnesota Mining in 1949 as an adhesives and coatings salesman serving industrial users in the Baltimore area. Also named regional industrial sales manager was Donald J. Malone who will move to the Chicago area after six years as an adhesives and coatings salesman with headquarters in St. Paul. Howard F. Norman was promoted to the position of product manager, government sales. He will be working with the development and technical service departments obtaining qualifications of products under government specifications. Mr. Norman started with Minnesota Mining in 1940 as a chemist in the Detroit Adhesives and Coatings Division. He recently has been regional industrial sales manager for the Division in the New York area. Appointment of Edward L. Decker to general sales manager of its Industrial Trades Tape Division was also announced recently by the company. Mr. Decker joined Minnesota Mining in 1937. His most recent assignment was central regional sales manager in the Industrial Tape Division with offices in Chicago. Mr. Decker will headquarter in St. Paul in his new position.

Hycar-Sized Denim Fabrics

In a new process announced by the Southern Research Institute, Birmingham, Ala., it was pointed out that denim fabrics woven from yarns sized with Hycar latex have greatly improved wearing qualities and colorfastness, yet are softer than the traditional starch sized material. Hycar-sized denims are said to retain their finish permanently, remain soft and do not fade after as many as ten to fifteen washings. Abrasion resistance of the fabric actually improves with each washing, the Institute reported. It was shown that after five washings, abrasion resistance improved 100% over the original fabric. Alabama Mills of Wetumpka, Ala., has conducted trial runs using the new process and is now using it commercially. Other mills are conducting trials and it is expected that they, too, will be in production soon.

Monsanto Building Plastics Plant

Monsanto Chemical Corp. has announced that it is building its first polyethylene production plant at Texas City, Texas, adjacent to an existing plant of its Plastics Division. The new unit is expected to be in production in the fourth quarter next year. When plans first were announced last March, the initial capacity of the plant was set at about 66,000,000 pounds annually, with a 50% increase scheduled for 1957.

Dollison Announces Retirement

O. S. Dollison

O. S. Dollison, vice-president of the Lee Rubber & Tire Corp., Youngstown, Ohio, announced his retirement on October 1 at a special testimonial dinner tendered in his honor by members of the mechanical rubber goods manufacturing industry. Mr. Dollison served as chairman of the Mechanical Division and the Executive Committee of the Rubber Manufacturers Association for two separate terms. He was chairman from 1942 to 1944 and was re-elected for a two-year term in 1948. Mr. Dollison first came to Youngstown in 1922 as a sales representative for the Republic Rubber Co. In 1923, Republic Rubber became a part of the Lee Rubber & Tire Corp. Mr. Dollison remained with the firm and in 1926 was appointed sales manager. Subsequently he became vice-president in charge of sales and then vice-president and general manager of the Republic Rubber Division. In 1950, he was named vice-president of the Lee Rubber & Tire Corp., Conshohocken, Penna., but maintained his headquarters in Youngstown. Active in civic affairs, Mr. Dollison belongs to the Chamber of Commerce, South Side Merchants and the Youngstown Club. He is also a director of the Mahoning National Bank and is a member and has served as a trustee of the Youngstown Country Club. Mr. and Mrs. Dollison have purchased a home at Fort Lauderdale, Fla., where they will reside with their daughter. Another daughter lives in California. A son, James, is a sales representative for Republic Rubber.

Simplex Introduces New RHW Wire

Simplex Wire & Cable Co., Cambridge, Mass., has introduced what is said to be the first RHW wire to meet the new National Electric Code. This rubber-insulated, rubber-jacketed cable is rated by the Underwriters at 75° C. (167° F.) wet or dry operation. Simplex-Anhydroprene Type RHW has been designed for use in ducts, while Simplex-Anhydrex Type RHW is for direct burial. Conductors of this new wire can be operated at 75° C. without harming the insulation. Thus, present conduits or ducts need not be disturbed.

Halting Lithopone Manufacture

The manufacture and sale of lithopone pigments will be discontinued by E. I. du Pont de Nemours & Co., Inc., as of February 28. Production will cease gradually before the end of December as raw materials on hand are consumed. Sales will continue from reserves until February 28. DuPont based its decision on the fact that demand for lithopone has been declining for several years and that the nation's productive capacity for it is considerably greater than needed. Lithopone, the company says, has been largely superseded by titanium dioxide. Titanium dioxide is manufactured by DuPont at its Edge Moor, Del., and Baltimore, Md., plants and by other companies. Other producers are manufacturing grades of the pigment which can be substituted for all of DuPont's lines except its "Ponolith NR-8" lithopone. To enable customers to obtain this grade in the future, DuPont has offered to furnish other producers with the technical information on its manufacture, free of charge. The decision to shut down lithopone will enable the company to devote the plant, space, and personnel it required to other products which are more in demand. Lithopone is being produced at the Newport, Del., plant which now has a large expansion of titanium metal production facilities under construction.

"Iron-Rubber" Protective Sheets

Magic Chemical Co., Brockton, Mass., has introduced a new type of protective sheeting called "Iron-Rubber" that successfully combats abrasion and corrosion. There are two types of Iron-Rubber; one reinforced, and the other non-reinforced. The reinforced Iron-Rubber is composed of two sheets of rubber permanently bonded to a central core of expanded steel. This type of sheeting can stand on edge without buckling, can be bent to fit corners without spring-back, or can be shaped to fit practically any contour, the company states. Non-reinforced Iron-Rubber is a single sheet of rubber and is much more flexible than the reinforced type. Iron-Rubber is light in weight and large sections can be easily handled by one man. It can be made in any thickness and in any length up to 36 inches wide.

Firestone Hits Billion Sales

More than $1,000,000,000 worth of products and services were purchased by customers of the Firestone Tire & Rubber Co. during the past 12 months to establish a new sales record for the company's fiscal year which ended on October 31, Harvey S. Firestone, Jr., chairman, announced on November 6. In setting this record, Firestone becomes one of the few companies currently reporting more than $1,000,000,000 in actual sales. Mr. Firestone also presented an encouraging picture for the rubber industry in estimating that total demand for tires in 1953 will equal or slightly exceed the all-time record of 1950. He also foresees 1954 in the rubber industry as a year of high employment with production being planned at normal capacity levels.

Enters Consulting Field

W. P. ter Horst

W. P. ter Horst, formerly associate director of research for the Mathieson Chemical Corp., has established himself as an independent consultant with offices at McDonogh Road, McDonogh, Md. Born in Amsterdam, Holland, Mr. ter Horst holds a chemical engineering degree from the Federal Institute of Technology, Zurich, Switzerland. During his business career, he has been a research engineer for the Industrial Rayon Corp., head of organic research at the General Laboratories of the U. S. Rubber Co., manager of research and development and general manager of the Fiber Division of the Virginia Carolina Chemical Corp., and director of application research and staff assistant to the director of research of the Mathieson Chemical Corp. Mr. ter Horst holds some 70 patents in his name with some 17 others pending covering such fields as rubber antioxidants, agricultural chemicals, textile fibers, extenders for plastics, etc. In his new capacity, Mr. ter Horst will offer chemical consultation in the fields of rubber, plastics, textiles and agricultural chemicals and will initiate and direct chemical research and development in these fields. As an associate of Penniman and Browne, Inc. of Baltimore, Md., he has access to laboratory and pilot plant facilities as well as technical personnel.

Forms Westwood Chemical Co.

Lester J. Koch, formerly vice-president and eastern sales manager of the Witco Chemical Co., and Charles Hemingway, previously a vice-president for Witco Chemical in the Cleveland area, have announced the formation of the Westwood Chemical Co. with offices at 520 Fifth Ave., New York 36, N. Y., and Westwood Chemicals, Inc, of Cleveland, Ohio. Both concerns will operate as sales agents to the rubber and other industries. The Westwood Chemical Co. has been appointed New York sales agent for "ADM Rubber Makers Stearic Acid" produced by the Archer-Daniels-Midland Co., while it is reported that both concerns have been engaged as representative for the Synthetic Products Co. of Cleveland. It is expected that both the Westwood Chemical Co. and Westwood Chemicals, Inc., will add other products to their line in the near future.

Reduces Isocyanate Prices

Immediate price reductions ranging up to almost 50% affecting five different grades of isocyanates have been announced by the Phosphate Division of the Monsanto Chemical Co. The company pointed out that reduction has been made possible by improved manufacturing efficiencies, better supplies of raw materials and increased consumption. Truckload prices were reduced as follows: tolylene di isocyanate distilled, from $3.90 per pound to $2.00; tolylene di isocyanate concentrated undistilled, from $2.00 per pound to $1.05; isocyanate di p-p′ diphenyl methane concentrated crude, from $3.90 per pound to $3.45; isocyanate di p-p′ diphenyl methane dilute crude, from $1.90 per pound to $1.85; isocyanate di p-p′ diphenyl methane purified from $4.40 per pound to $4.15. Proportionate price reductions in less than truckload prices for all five grades were also made. All the new prices are f.o.b. Anniston, Ala.

Starts Hexamine Production

Mathieson Chemical Corp., Baltimore, Md., recently started commercial production of hexamethylenetetramine, commonly known as hexamine, at its plant in Morgantown, West Va. It is now offering the technical grade, granular material in carload quantities, packaged in moisture-resistant drums and bags. With the activation of its Morgantown unit, Mathieson becomes one of the country's major producers of hexamine. A colorless crystalline solid, hexamine is made by the reaction of paraformaldehyde and gaseous ammonia. It has numerous applications in industry and medicine, including serving as the starting point in the manufacture of the powerful high explosive, cyclonite. Its principal uses are as a source of water-free formaldehyde in the manufacture of phenolic resins and as a stabilizer in plastics and as a vulcanization accelerator in rubber.

Stir-In-Type Plastisol Resin

Exon 654, a stir-in-type plastisol resin, expressly created to impart heat and light stability, physical toughness, and chemical stability to end products, has been added to the Exon line featured by the Firestone Plastics Co., Pottstown, Penna. Intended for use in casting thin films, coating of paper and fabrics, and other dip coating and slush molding operations, Exon 654 is readily dispersed in plasticizer by simple stirring, with no grinding necessary. It is a fine white powder in form, with a specific gravity of 1.40 and an average relative viscosity of 2.65.

Columbian Carbon Co. Moves

On November 1, the Columbian Carbon Co. with its subsidiaries, the Fred'k H. Levey Co. and the L. Martin Co., moved its executive offices to 380 Madison Ave., New York 17, N. Y. The company was formerly located at 41 East 42nd St., New York 17. Binney & Smith Co. also moved to the new address recently.

Named Sales Representative

Dawson P. Wilson

Sid Richardson Carbon Co. has announced the appointment of Dawson P. Wilson as a sales representative with headquarters at 335 South Main St. in Akron, Ohio. Upon his graduation from the University of Illinois in 1928, Mr. Wilson was employed by the B. F. Goodrich Co. In 1935, he became associated with the Firestone Tire & Rubber Co., and remained there until 1940, when he entered the armed services. Upon his return to civilian life, he joined the General Tire & Rubber Co., where he had been employed until this new association. His work with the various rubber companies covered technical development, technical sales and foreign plant operation.

Ohzourk Named Factory Manager

Joseph Ohzourk has been appointed factory manager of the Chicago Die Mold plant of the Mechanical Goods Division, U. S. Rubber Co. Mr. Ohzourk, formerly an administrative assistant at the plant, succeeds Esper A. Petersen, who will remain with the company as a consultant. Chicago Die Mold formerly owned by Mr. Petersen until its sale to U. S. Rubber in October, 1951, is the production center of Enrup and Uscolite, two of the company's recent developments in the thermoplastic field. The Chicago plant also molds other plastics for both consumer and industrial applications and maintains a separate research and development laboratory in Fort Wayne, Ind.

"Rubberseal" Puncture-Proofing

Rubberseal Corp. of Woodside, N. Y., has introduced a new self-sealing compound for the puncture-proofing of all automobile tires. Called "Rubberseal," the material is described as consisting of tiny particles of rubber in a jelly-like vegetable base. It is injected directly into the tire at a service station by a special pump connected to the air hose. Once inside, the jelly covers the entire surface. When an object punctures the tube, the material flows around the object. When the puncturing object is removed, the gummy compound is forced into the opening to seal off any loss of air.

NAMES IN THE NEWS

R. Blair, associated with the Columbia-Southern Chemical Corp., has been transferred from the Chicago, Ill., office to the Boston, Mass., office.

Frank Taylor, formerly associated with the Commercial Solvents Corp., has joined the Chicago Copper & Chemical Co., Blue Island, Ill.

A. F. Carr, previously associated with the Non-Breakable Button Co. of Milwaukee, Wisc., has joined the Hawkeye Rubber Manufacturing Co. of Cedar Rapids, Iowa.

Ted Young, formerly associated with the Diamond Wire & Cable Co., Sycamore, Ill., has joined the Central Rubber & Manufacturing Co. of Belvidere, Ill.

Mike Hecht, previously associated with the Felt Products Manufacturing Co., is now with Albert Troestel Products, Ltd., at Lake Geneva, Wisc.

Harvey Wahn, formerly associated with the Hawkeye Rubber Manufacturing Co., Cedar Rapids, Iowa, has joined the Corduroy Rubber Co., Grand Rapids, Mich.

Charles Skuza, previously with the Central Rubber & Manufacturing Co. of Belvidere, Ill., is now associated with the Phoenix Manufacturing Co., Joliet, Ill.

Harold Bell, formerly associated with Firestone Industrial Products at Noblesville, Ind., has joined the Mid States Rubber Products Corp., Evansville, Ind.

Hugo Skoglund, previously associated with the Diamond Wire & Cable Co. at Sycamore, Ill., has joined the Felt Products Manufacturing Co. at Skokie, Ill.

Bert Oveson, formerly with the Phoenix Manufacturing Co., Joliet, Ill., is now devoting full time as an officer of Metro Rubber Products Corp., Willow Springs, Ill.

C. E. Draper, previously associated with the Mid States Rubber Products Corp., Evansville, Ind., is now associated with the Sun Rubber Co., Barberton, Ohio.

John H. Long, previously manager of general accounting for the Goodyear Tire & Rubber Co., has been elected assistant comptroller of the company.

Dr. William F. Waldeck, associated with the Wyandotte Chemicals Corp. since 1939, has been named director of research and development of the company succeeding Dr. Thomas H. Vaughn, who has left the company to become vice-president in charge of research and development of the Colgate-Palmolive Co.

Frank Grilli, formerly associated with Innis, Speiden & Co., has joined the New York branch sales office staff of the Diamond Alkali Co.

John V. Roach, previously assistant superintendent of the Chicago, Ill., plant of the Witco Chemical Co., has been promoted to plant superintendent.

Kent A. Blakeslee, associated with the U. S. Rubber Co. since 1950, has been named assistant to the general sales manager of the Mechanical Goods Division of the company.

Frank T. Magennis, vice-president of the Goodyear Export Co., has been awarded the French Legion of Honor for his outstanding work with the International Road Federation.

Hugh A. Bullock, formerly national account sales manager for the Crescent Co., has been appointed product manager for anti-freeze sales for the Mathieson Chemical Corp., Baltimore, Md.

Milton Rabinowitz has been appointed vice-president and general manager of the First Machinery Corp., New York, N. Y.

Franklin R. Hoadley, president of the Farrel-Birmingham Co., accompanied by Mrs. Hoadley, recently left on a seven-week European tour during which time he will visit company customers on the Continent.

Dr. Blaine O. Schoepfle has joined the research and development staff of the Hooker Electrochemical Co. He has been assigned to the Plastics and Resins Group.

Harvey S. Firestone, Jr., chairman of the Firestone Tire & Rubber Co., has had his name added to the roster of the hall of Fame of Distribution which has been established by the Boston Conference of Distribution to honor persons who have made outstanding contributions to this field over the last 25 years.

James E. MacDonald, Jr., vice-president of the Goodall Rubber Co., has accepted the chairmanship of the Rubber Division of the 1954 Greater New York campaign for the National Foundation for Infantile Paralysis.

Bernard Bory, associated with the Baird Rubber & Trading Co., was a member of the five-man crew that recently won the World Championship in Six Meter Yacht Racing.

Harold H. Vischer, formerly manager of truck tire sales for the Boston, Mass., district of the Firestone Tire & Rubber Co., has been promoted to manager of passenger tire sales for the company.

James W. Harley, director of traffic of the U. S. Rubber Co., has accepted the chairmanship of the Rubber Division in the campaign of the Travelers Aid Society of New York to raise $364,000.

Alexander Moore, associated with Emery Industries, Inc., for the past four years, has been appointed to the Development and Service Department where he will be associated with both the development of new products and technical service.

Theodore Marvin, president of the Michigan Chemical Corp., has also been elected chairman of the board. He was formerly associated with the Hercules Powder Co.

J. D. Sharkey, formerly Eastern Division sales manager of the Firestone Tire & Rubber Co., has been appointed manufacturers sales manager.

Dr. R. P. Dinsmore, vice-president in charge of research and development of the Goodyear Tire & Rubber Co., has been made an honorary member in the National Council of the American Institute of Chemists.

William A. LaValley, associated with the Mansfield Tire & Rubber Co. since 1949, has been appointed advertising and sales promotion manager succeeding the late Harry L. Mahoney.

F. J. Sackfield, technical superintendent of the Kentucky Synthetic Rubber Corp., has been elected secretary-treasurer of the Louisville Section of the American Institute of Chemical Engineers for the 1953-54 period.

C. Robert Creamer, Jr., has been named sales manager of the Plastics Division of the O'Sullivan Rubber Corp., Winchester, Va.

Frank B. Wolcott, general manager of manufacturing for the Wyandotte Chemicals Corp., has been elected vice-president in charge of manufacturing.

Andrew A. Root, formerly assistant professor at the Massachusetts Institute of Technology, has joined the staff of the Frederick S. Bacon Laboratories, Watertown, Mass.

T. G. MacGowan, manager of the Marketing Research Department of the Firestone Tire & Rubber Co., received a citation at the 25th Annual Conference on Distribution held recently in Boston, Mass., for his work in promoting more effective distribution.

Dr. F. Otto Haas, associated with the Rohm & Haas Co. since 1939, has been elected executive vice-president of the company.

Lester D. Lundsted, previously assistant to the director of research of the Wyandotte Chemicals Corp., has been named director of chemical research.

Kentucky Tests Rubber Road

Rubberized asphalt recently laid on a narrow 20-foot thoroughfare, carrying a traffic load of approximately 16,000 vehicles a day south of Louisville, Ky., is now undergoing one of the most severe traffic tests possible. This highway was selected for the accelerated test by the Highway Materials Research Laboratory of the University of Kentucky and the Kentucky Research Foundation. The paving was done under the supervision of the Kentucky Department of Highways. The material being tested is a new synthetic latex compound called "Rub-R-Road" developed by the Firestone Tire & Rubber Co. For the past three years, the Kentucky Research Foundation, under a grant from Firestone, has been making an exhaustive study of various rubber additives for asphalt paving materials. Included in the study have been natural, synthetic and processed crumbs; plasticized rubber, and natural and synthetic latices. As a result of this research program, Firestone developed the synthetic latex Rub-R-Road compound. While work on the other forms of rubber has not been abandoned, the latex project is being given precedence. In the resurfacing project, sections of asphalt pavement using Rub-R-Road compounds varying from 2 to 10% were alternated with control sections of ordinary asphalt. Because of the poor condition of both the base and old surface of the part of the highway that was resurfaced with rubberized asphalt, engineers expect the heavy traffic will shorten the service life of the new surfacing. This will provide the equivalent results of an accelerated field test. Usually a properly laid highway surface requires from 8 to 20 years before showing signs of failure under normal traffic conditions.

Schulman Anniversary Booklet

In commemoration of its 25th anniversary, the firm of A. Schulman, Inc., dealers in scrap rubber and plastics with headquarters in Akron, Ohio, have issued a very attractive, informative booklet on the company and its activities. The booklet is actually a pictorial journey through the world-wide Schulman organization and covers scrap rubber, plastics, hard rubber dust, crude rubber and the company's export service. Of special interest is the step-by-step description of the preparation of scrap rubber and scrap rubber compounds. Copies of the booklet can be secured on request from A. Schulman, Inc., 790 East Tallmadge Ave., Akron 8, Ohio.

Aromex 125 in Production

Production of Aromex 125, a new carbon black that is said to deliver as much as 25% more tire mileage, is now under way at the Borger, Texas, plant of the J. M. Huber Corp. Additional production of this new super-abrasion furnace black is also planned for the company's furnace black plant at Eldon, Texas. Aromex 125 is characterized by a fine particle size with high structure.

Caskey Elected Vice-President

John E. Caskey

John E. Caskey has been elected a vice-president of the U. S. Rubber Co. and general manager of the company's Naugatuck Chemical Division. Mr. Caskey succeeds John P. Coe, who has been named to handle the company's interests in the transfer of the synthetic rubber plants from the government to private industry. At the same time it was announced that George R. Vila, formerly general sales manager of Naugatuck Chemical, has been named assistant general manager of the division. Mr. Caskey, together with Mr. Vila, will direct all sales, research and production activities of the division which has chemical plants in Naugatuck, Conn., Los Angeles, Calif., Painesville, Ohio, and Baton Rouge, La. It also operates two synthetic rubber plants for the government at Naugatuck and Port Neches, Texas. In addition, Naugatuck Chemical operates the Kankakee Unit of the Joliet Arsenal, Joliet, Ill., manufacturing high explosives for the armed forces.

Silastic 675 Introduced

Dow Corning Corp., Midland, Mich., has introduced "Silastic 675," a new silicone rubber which is said to offer an unprecedented combination of desirable properties. Silastic 675 exhibits the lowest compression set of any extreme temperature silicone stock available, the company states. Compression set of the product, for example, is in the range of 15-20% after 22 hours at 300° F.; 20 to 28% after 70 hours. In addition, Silastic 675 does not contain any toxic additives. It also has low shrinkage characteristics, about 2.8%-1.8% in molding and about 1.0% during the full oven cure of 24 hours at 480° F. In many applications the material can be fabricated in molds designed for conventional organic rubber parts. Parts fabricated from Silastic 675 for electrical applications retain excellent dielectric properties over a wide range of temperatures, are moisture repellent, and are highly resistant to the effects of high humidity or immersion in water. Of red color, Silastic 675 has a specific gravity of 1.3 at 25° C./25° C. Shore hardness of the material is 70-80, while its tensile strength is 600 psi. It exhibits elongation of 175%.

New Miller Tubeless Tire

The "Miller Safety Guard Imperial", a puncture-sealing tubeless tire, has been announced by the Miller Rubber Co. division of the B. F. Goodrich Co. The new tire protects against blowouts, seals punctures, and offers maximum protection against skidding with an 8-rib tread that assures fast, straight-line drops, the company states. The new Miller tubeless tire has a wider tread than conventional tires, and puts more rubber on the road. Microfine carbon black is used in all the tread rubber. The result is a more wear-resistant rubber that adds mile after mile of tire life. A black curb strip has been built into the sidewall of the Safety-Guard Imperial to protect white sidewalls from scuffing.

The tire is built with a patented blowout shield that protects against dangerous blowouts caused by bruises. A double liner of synthetic rubber extends over the entire inside of the tire, from bead to bead, and is permanently bonded to the cord body. In the event of a bruise or cord break, the blowout shield allows air to escape slowly, permitting the driver to bring his car to a safe stop. Punctures on running wheels are sealed by a layer of special gummy rubber that surrounds a puncturing object, sealing the hole when the object is removed. The tire guards against skids with four special "Stop-Skid" center bars in the tread that clear away slick road film and provide a dry-wiped surface for fast acceleration and resistance to sideslip. Hundreds of "Grip-Fast" blocks are molded into the four outside ribs for additional skid protection.

Cellosize in Powder Form

A new, easy-to-use powder form of Cellosize hydroxyethyl cellulose is now commercially available for new plant facilities at Niagara Falls, New York, according to an announcement by Carbide and Carbon Chemicals Co., a division of Union Carbide and Carbon Corp. This white, water-soluble, free-flowing powder is useful as a thickener, stabilizer, dispersant, and binder. It is being offered in two viscosity types—"Cellosize WPHS" (viscosity of a 5% solution is approximately 7000 cps. at 20°C.), and "Cellosize WPHS—Low" viscosity of a 5% solution is approximately 100 cps. at 20°C.). Both types contain a minimum of 60% hydroxyethyl cellulose and have a maximum salt content (sodium phosphates) of 35%. Cellosize WPHS has already proven of value as a thickener and stabilizer for resin emulsions, and in other uses. Cellosize WPHS is also suggested as a thickener for detergents, as a pigment dispersant, as an adhesive, and as a general purpose thickener. For most of these uses the salt content of the new powder form has the advantage of making the hydroxyethyl cellulose easier to dissolve in water. In many preparations the presence of the phosphate salts may be beneficial because of their detergent and dispersant properties.

Need a personal file of RUBBER AGE? Use the coupon on page 313.

Expanding Uses for Vibrin

A new development in the rapidly expanding use of plastics in motor vehicle manufacture has been announced by the Seaboard Transportation Co. of Antioch, Calif. It is the production of truck and trailer bodies constructed by Vibrin polyester resin, made by Naugatuck Chemical Division of the U. S. Rubber Co., and glass fiber. To date, the largest plastic trailer bodies built by Seaboard are 24 feet long by 8 feet wide and 8 feet high. This particular size is the one most commonly used by the company, which operates more than 300 heavy duty trucking units, capable of carrying any type of load in California, Oregon and Washington. These units are used in "trains," consisting of a tractor and two semi-trailer combinations, with a gross over-all weight of 76,800 pounds, maximum permissible in coast states.

Construction of the plastic trailer bodies is not complicated. The material is molded in wood, steel and plastic molds by "laying-up" the fiber glass cloth and mat, cut to rigid specifications, following which it is saturated with Vibrin polyester resin. As the process proceeds, preformed ribs, made of the same material, are pressed into the wet lay-up ultimately forming a complete section, the parts of which, when cured, become one integral unit. The bodies are made in four sections; two sides, the roof and front section. The space at the rear, of course, is used for doors. After each section is completely cured the four are assembled, and bonded together by resin and mechanical means, on conventional trailer chassis. Smaller truck van bodies have been made in one mold.

New Literature From Anaconda

"Full Power Ahead", A 16-page brochure, has just been released by the Anaconda Wire & Cable Co. It is a complete promotional kit similar to Anaconda's "Wire Ahead and Power Up" campaigns and is the firm's contribution to the electrical industry's counterattack against obsolescent wiring. The program has been worked up to benefit electrical contractors, electrical distributors and utilities "to promote and provide for extended use of electricity on the farm, in the home, in small industry, and in commercial enterprises." A folded-in "tool kit" contains everything the contractor needs to build home rewiring, farm rewiring and industrial and commercial rewiring business, including the all-important "How to do it." Pages of the brochure itself show the simple, step-by-step way each group—contractors, distributors and utility companies—can organize cooperatively in the interest of better business all around, including necessary information on how to finance wiring modernization work by property improvement loans insured under "Title I" of the National Housing Act; direct mail samples, letterhead samples for use by the utilities, etc.

Hooker Electrochemical Co. has announced that it will start shipping liquid caustic soda and liquid chlorine from its new plant at Montague, Mich., starting January 1, 1954.

Knight Named Vice-President

W. W. Knight, Jr.

Allied Chemical & Dye Corp. has announced the appointment of W. W. Knight, Jr., as vice-president of its Barrett Division. For the past seven years, Mr. Knight has held executive positions with the Libbey-Owens-Ford Glass Co. of Toledo, Ohio. Previously, for a period of eleven years, he was with the Michigan Alkali Co. Mr. Knight holds degrees from Yale University and the Harvard School of Business Administration. With the exception of his service during World War II, Mr. Knight has given all of his active business years to the chemical industry. He is a member of the Plastics Committee of the Manufacturing Chemists' Association. As vice-president of the Barrett Division, Mr. Knight will be in charge of the industrial resin program. Since the acquisition of Plaskon, Barrett, a leading producer of basic coal tar chemicals, roofings, protective coatings and paving materials, is now in a position to offer alkyd, urea-formaldehyde, polyester, polyvinyl, terpene and phenolic plastic resins to its customers.

Appointed Industrial Sales Head

Omer L. Dixon, widely-known in the textile field and a veteran of twenty-eight years with the Textileather Corp. of Toledo, Ohio, has been named industrial sales manager of the company. In his new assignment, Mr. Dixon will work closely with industrial accounts through the company's sixteen regional sales offices. The company manufactures an extensive line of plastic coated fabrics, film and processed textiles. Lester F. Naylor has been appointed product manager with responsibility for merchandising Textileather products to manufacturers of furniture and allied products.

CORRECTION

Through a typographical error, the name of Mr. R. S. Graff was spelled incorrectly in connection with the paper on "Compounding Neoprene for Increased Resistance to Water" in our October, 1953, issue. We extend our apologies to Mr. Graff in this instance.

Astin Addresses Akron Council

Dr. Allen V. Astin, director of the National Bureau of Standards, was the featured speaker at the October 28 meeting of the Akron Council of Engineering and Scientific Societies held at the Mayflower Hotel in Akron, Ohio. Dr. Astin spoke on "Tire Testing by the Federal Government." The speaker pointed out that the primary purpose of the government program is to obtain the maximum return for each dollar spent. Records from 1943 to 1948 of tires obtained from eight different manufacturers emphasized the spread between the quality of tires from different companies, and also the variability of quality from each manufacturer from year to year. The latter point, Dr. Astin declared, makes it ineffective to order tires on the basis of prior performance records. The government, he said, has frequently acquired more of the poorer tires and less of the superior tires in the absence of any effective means of buying tires on a performance basis. During the fiscal year ended June 30, 1953, federal purchases of tires amounted to $75,000,000. Of this amount, $25,000,000 was for commercial tires. Dr. Astin stated that it has been conservatively estimated that the government would save about 20% of its annual commercial tires bill under its recently developed procurement program. He also stated that tread wear appears to be a major factor in determining tire life, yet a direct specification for tread wear has not been consistently a factor in the government's purchase of tires.

Foxboro Information Sheets

How to determine the level, weight, displacement, composition, thickness, moisture, and other previously unmeasurable characteristics of difficult fluids and solids is explained in a new series of Technical Information Sheets, just issued by the Foxboro Co., Foxboro, Mass. Based on practical industrial uses of Foxboro Capacity Dynalog Instruments, the data show the application of capacitance measurement to processes which cannot be measured by conventional means. Fully described is the Dynalog Sheet Weight Recorder, used extensively to measure the thickness of plastic sheets and to weigh tire cord fabric and rubber gum stocks. Weight or thickness is determined by passing the sheet stock through a measuring head which responds to the dielectric properties (and hence, weight or thickness) of the material. Instrument data and circuit diagrams are also featured in the Technical Information Sheets.

Royal Electric Buys New Mill

Royal Electric Co. of Pawtucket, R. I., has purchased a 500,000 square foot mill at Manville, R. I., from the Crescent Corp. of Fall River, Mass., for an undisclosed amount. Royal Electric now employs about 700 persons at its Pawtucket plant making electrical wire and cord and other electrical products. These operations will be continued, and the newly-acquired property will be used to expand operations. The Manville mill has been idle for the past six years.

FINANCIAL NEWS

Goodyear Tire & Rubber Co.

Nine Months to September 30: Net income of $35,321,461, which is equal to $7.57 a common share, compared with $27,609,612, or $5.81 a share, in the first nine months of the preceding year. Consolidated net sales for the first nine months of 1953 amounted to $920,310,190, against $853,933,430 in the first nine months of 1952. According to the company report, company earnings in the first nine months of this year represented a new record high. The new high mark was achieved in spite of increased costs and taxes, the report said.

B. F. Goodrich Co.

Nine Months to September 30: Net income of $25,201,898, which is equal to $6.01 a share, compared with $23,008,681, or $5.36 a share, in the same period of 1952. Net sales for the nine months ended September 30, 1953, totaled $520,654,622, against $453,938,658 in the corresponding period of the previous year. Results for both periods are after providing reserves of $1,500,000 for increased replacement cost of facilities.

Minnesota Mining & Mfg. Co.

Nine Months to September 30: Net income of $13,708,826, which is equal to $1.63 a common share, compared with $11,442,337, or $1.39 a share, in the first nine months of the preceding year. Net sales in the first nine months of 1953 totaled $162,996,479, against $133,778,460 in the first nine months of 1952. Sales in the 1953 period set a new record for the company, 22% over the previous record set in the same period of 1952.

Rome Cable Corp.

Six Months Ended September 30: Net profit of $933,000, which is equal to $1.87 a common share, contrasted with $1,058,000, or $2.17 a share, after dividend requirements on preferred stock which was redeemed March 25, 1953.

Cooper Tire & Rubber Co.

Nine Months to September 30: Net profit of $415,211, which is equal to $2.65 a share, compared with $238,816, or $1.52 a share, in the same period of 1952. Sales in the first nine months of 1953 amounted to $17,779,042, against $11,814,758 in the first nine months of the previous year.

Monroe Auto Equipment Co.

Quarter Ended September 30: Net income of $56,858, which is equal to 13c a common share, contrasted with a net loss of $20,917 in the same quarter a year ago. Net sales in the 1953 quarter were $4,450,079, against $3,066,178 in the September quarter of the prior year.

General Tire & Rubber Co.

Nine Months Ended August 31: Net profit of $5,505,856, which is equal to $4.34 a common share, compared with $4,449,570, or $3.48 a share, in the first nine months of the preceding year. Sales in the first nine months of 1953 at $153,842,551 set a new high for the company. Sales in the comparable period of 1952 totaled $132,761,695. The figures do not include the sales or profits of General Teleradio, Inc., the company's radio and television subsidiary.

U. S. Rubber Co.

Nine Months to September 30: Net profit of $21,488,326, which is equal to $3.32 a common share, compared with $18,912,141, or $2.83 a share, in the first nine months of 1952. Net sales for the 1953 period rose to a new high of $657,393,028, against $648,744,964 in the first nine months of 1952. The nine-month profit in 1953 amounted to 3.3% of sales, contrasted with 2.9% last year.

American Cyanamid Co.

Nine Months to September 30: Net profit of $21,043,438, after dividends on preferred stock, which is equal to $2.44 a share, compared with $19,024,726, also after preferred dividends, or $2.23 a share, in the first nine months of 1952. Net sales in the first nine months of this year amounted to $287,301,694, against $271,733,740 in the first nine months of 1952.

Boston Woven Hose & Rubber Co.

Year Ended August 31: Net income of $208,746, which is equal to 48c a common share on net sales of $16,683,690, compared with $636,159, or $1.72 a share on sales of $18,602,846 a year earlier. The decrease in sales was partly due to a two-week strike in September, 1952, effects of which continued to be felt in subsequent months.

Aetna-Standard Engineering Co.

Year Ended June 30: Net income of $923,428, compared with $774,285 in the previous fiscal year. Net sales in the 1953 fiscal year amounted to $27,338,685, against $20,520,387 in the previous year. As of June 30, 1953, total current assets stood at $7,125,779, while total current liabilities were $4,698,685.

Sheller Manufacturing Corp.

Nine Months to September 30: Net income of $2,702,810, which is equal to $2.83 a common share, compared with $1,642,367, or $1.72 a share, in the 1952 period. Net sales in the nine months ended September 30, 1953 totaled $36,983,136, against $31,855,527 in the nine months ended September 30, 1952.

Parker Appliance Co.

Quarter Ended September 30: Consolidated net income of $281,009, which is equal to 73c a share, against $227,807, or 59c a share, in the quarter ended September 30, 1952. Net sales in the 1953 quarter totaled $6,032,096, contrasted with $4,852,400 in the 1952 quarter.

Belden Manufacturing Co.

Nine Months to September 30: Net income of $1,040,710, which is equal to $3.24 a share, compared with $687,752, or $2.14 a share, in the first nine months of the previous year. Net sales in the first nine months of 1953 totaled $20,650,075, against $15,806,221 in the 1952 period.

Circle Wire & Cable Corp.

Nine Months to September 30: Net profit of $1,529,679, which is equal to $2.04 a share, compared with $1,644,135, or $2.19 a share, in the comparable period of the preceding year. Net sales in the 1953 period amounted to $17,411,627, against $16,570,771 in the 1952 period.

Pittsburgh Coke & Chemical Co.

Nine Months to September 30: Net profit of $2,483,000, which is equal to $2.39 a common share, compared with $1,426,000 or $1.23 a share, in the comparable period of the preceding year. Net sales in the 1953 period were $41,636,000, against $28,275,000 in the 1952 period.

Electric Hose & Rubber Co.

Year to August 31: Net profit of $621,021, which is equal to $3.23 a share, compared with $750,051, or $3.91 a share, in the previous fiscal year. Net sales in the year ended August 31, 1953, amounted to $14,439,422, against $16,147,131 in the year ended August 31, 1952.

Resistoflex Corp.

Year Ended June 30: Net profit of $106,332, which is equal to 31c a common share, compared with $61,292, or 17c a share, in the 1952 fiscal year. Sales in the year ended June 30, 1953 amounted to $3,495,481, against $2,828,928 in the year ended June 30, 1952.

National Automotive Fibres, Inc.

Nine Months to September 30: Net profit of $2,599,402, which is equal to $2.61 a share, compared with $1,402,272, or $1.41 a share, in the nine months to September 30, 1952. Sales in the 1953 period amounted to $68,840,899, against $51,178,790 in the 1952 period.

DeVilbiss Company

Nine Months to September 30: Net profit of $641,243, which is equal to $2.14 a share, compared with $651,812, or $2.17 a share, in the comparable period of 1952.

Heyden Chemical Corp.

Nine Months to September 30: Net income of $1,010,048, which is equal to 59c a common share, compared with $839,130, or 42c a share, in the comparable period of the preceding year. Net sales in the nine months to September 30, 1953, were $18,182,330, against $15,822,206 in the 1952 period.

Electric-Auto-Lite Co.

Nine Months to September 30: Net income of $8,242,756, which is equal to $5.25 a share, compared with $6,350,374, or $4.05 a share, in the corresponding nine months of 1952. Net sales in the 1953 period were $221,374,726, an increase of 18% over the 1952 period volume of $187,763,741.

Seiberling Rubber Co.

Nine Months to September 30: Net income of $762,063, which is equal to $1.54 each on 391,430 common shares, compared with $671,876, or $1.69 each on 301,010 shares, in the comparable period of 1952. Net sales in the 1953 period amounted to $30,998,937, against $31,192,328 in the nine months ended September 30, 1952.

S. S. White Dental Mfg. Co.

Nine Months to September 30: Net profit of $636,259, which is equal to $1.76 a share, compared with $578,183, or $1.65 a share, in the 1952 period. Net sales in the first nine months of 1953 totaled $16,482,169, against $16,066,815 in the first nine months of the previous year.

Thermoid Company

Nine Months to September 30: Net profit of $1,052,358, which is equal to $1.20 a share, compared with $654,111, or 70c a share, in the 1952 period. Gross sales in the nine months to September 30, 1953, amounted to $30,316,121, against $29,057,867 in the 1952 period.

New Jersey Zinc Co.

Nine Months to September 30: Net profit of $2,871,654, which is equal to $1.47 a common share, compared with $10,035,454, or $5.12 a share, in the 1952 period. Income from operations dropped to $2,606,886 from $12,648,099 in the 1952 period.

Swan Rubber Co.

Year to July 31: Net income of $755,187, which is equal to $1.18 a common share, compared with $753,092, or $1.17 a share, in the previous fiscal year. Net sales in the 1953 fiscal year amounted to $12,857,846, against $11,386,445 in the 1952 fiscal year.

General Cable Corp.

Nine Months to September 30: Net income of $3,906,231, which is equal to $1.76 a common share on sales of $15,597,546, compared with $3,618,489, or $1.61 a share, on sales of $15,180,910 in the 1952 period.

Kaiser Aluminum & Chemical Corp.

Quarter Ended August 31: Net profit of $1,214,545, which is equal to 26c a common share on sales of $56,018,789, compared with $1,828,407, or 42c a share, on sales of $37,730,356 in the August quarter of the preceding year.

General Cable Corp.

Nine Months to September 30: Net income of $3,906,231, which is equal to $1.76 a common share on sales of $15,597,546, compared with $3,618,489, or $1.61 a share on sales of $15,180,910 in the comparable period of 1952.

Flintkote Company

Forty Weeks to October 10: Net income of $3,943,294, which is equal to $2.93 a common share on net sales of $72,274,972, compared with $3,680,294, or $2.71 a share, on net sales of $64,334,310 in the 1952 period.

Goodall-Sanford, Inc.

Quarter Ended September 30: Net loss of $396,689 on net sales of $7,326,204, compared with a net loss of $225,674 on sales of $8,948,871 in the September quarter of the previous year.

Allen Industries, Inc.

Nine Months to September 30: Net income of $865,530, which is equal to $1.55 a share, compared with $643,541, or $1.15 a share, in the comparable period of the previous year.

Expanding Des Moines Plant

An expansion program is under way at the Des Moines, Iowa, tire plant of the Firestone Tire & Rubber Co. at a cost of more than $6,000,000. The program will make the plant one of the top tire producers in the Firestone system. When construction is completed, the Des Moines plant will have approximately 17 acres under one roof. Phases of the expansion will be the addition of more than 100,000 square feet to the manufacturing area, 10,800 square feet of office space, three electric substations, and other additions. Plans called for the completion of the new factory building by November 1, with production from the new area sometime in November. The entire expansion program is scheduled for completion by May 1, 1954. The Des Moines plant is said to be one of the most modern in the tire industry, utilizing the latest in machines and techniques. Raw materials move into one end of the building and tires roll out the other end in almost one continuous process.

Johns-Manville Plans New Plant

Johns-Manville Corp. has announced plans to build a $3,000,000 addition to its plant in Waukegan, Ill. Company officials stated that the addition will contain a warehouse and a plant for the manufacture of friction materials. The plant addition is scheduled for completion by January, 1956.

U. S. Royal Super Fleetway

A new extra tread truck tire called the "U. S. Royal Super Fleetway" has been announced by the U. S. Rubber Co. It is said to be the first commercial tire made with super-tenacity rayon cord that is 20% stronger than ordinary rayon. With the super-tenacity rayon carcass, the new tire has up to 79% more flex fatigue resistance. It also is said to have as much as 20% more resistance to ruptures, assuring more recappings. The cords are firmly bonded together with plastic resins that have exceptional adhesion. The company states that this tire has up to one and one-half times the tread rubber, which coupled with the unusually strong carcass construction, gives longer original mileage plus a sounder base for more recap mileage. The tread has been deepened on the new Super Fleetway for extra high mileage, and the undertread has also been made thick to give protection against penetration by foreign objects.

Individual rubber supports that stabilize each of the extra-high ribs in this tire are designed to provide tread stability and assure even wear. The new tire incorporates a number of "Fleetway" features, including "micro-mix" tread compound, double shock pads that distribute impacts over a large area, and air cooled shoulders that dissipate excess heat. The tread design reduces sideslip, and gives improved road contact. The "road level" profile of the tire puts additional rubber on the road and spreads the wear. Prices of the super-tenacity tires will be 12½% higher than the regular U.S. Royal Fleetway tires. For severe service, the tire is also available in an all-nylon construction at prices 15% higher than the super-tenacity rayon tire.

Marks 40 Years at Goodyear

H. D. Foster, manager of the Industrial Products Division of the Goodyear Tire & Rubber Co., was recently honored by the firm on his completion of 40 years' service. In commemoration of the occasion, R. S. Wilson, vice-president in charge of sales, presented Mr. Foster with a service award. He joined Goodyear in 1913 at Akron, and subsequently was transferred to Cleveland. From there he went to Toledo and in 1915 was appointed district manager of mechanical goods sales in Birmingham, Ala. He returned to Cleveland in 1917, and in 1938 was named manager of mechanical goods sales there. Mr. Foster returned to Akron in 1941 as mechanical goods eastern division sales manager. He assumed the position he now holds in 1947.

Anaconda Building New Plant

Anaconda Wire & Cable Co. has broken ground on a new $1,500,000 plant beside the company's present facilities in Orange, Calif. Included in the plan is an 84,000 square foot industrial building, which will treble the present production capacity at Orange for the manufacture of rubber insulated wire and cable. This building is scheduled for completion by late April, 1954, and a 15,000 square foot office and recreation building is scheduled for completion by June 1.

NEWS IN BRIEF

A 24-page illustrated booklet showing a variety of off-the-road tires performing rugged service has just been released by Goodrich. Every off-the-road tire in the company line is shown in actual service.

O. E. Linck Co., Inc., Clifton, N. J., is producing a new decorating kit with which Christmas and other designs may be applied to wrapping paper, ribbons, etc., by dusting crystals over an adhesive based on Bakelite vinyl resins.

Boston Woven Hose & Rubber Co. has created a new South Central Sales Division and opened a new warehouse at 114 Express St., Dallas, Texas.

The Calco Chemical Division of the American Cyanamid Co. has been given the "Award of Merit" for public relations communications by the New Jersey Manufacturers Association.

A smooth-flowing putty-like Geon vinyl plastic used as a Ford automobile weather sealant has proven to be very effective in shutting out the elements, yet is easy to apply to the car during speedy assembly line production, according to Ford engineers.

A Hycar rubber pendulum, resistant to the deteriorating effects of hydraulic fluid, serves as the suction line in the hydraulic reservoirs of Chance Vought Aircraft's new Navy jet fighter, the F7U-3 Cutlass.

Delaware Barrel & Drum Co., Wilmington, Del., is molding new, non-shattering drums of Bakelite polyethylene for shipping industrial acids and bulk chemicals. They are produced in capacities of 5, 15, 30 and 55 gallons.

Argus Chemical Laboratory, Brooklyn, N. Y., has announced the installation of a new 3,500 gallon glass-lined reactor designed for severe chemical service at high temperatures. Pfaudler Co. of Rochester, N. Y., makers of the unit, claim it to be the largest glass-lined installation in the world.

United Fruit and other companies are now using film tubes made of Bakelite polyethylene as a protective wrap for bananas shipped to this country from Central and South America.

Givaudan-Delawanna, Inc., and its associate companies, Givaudan Flavors, Inc., and the Sindar Carp., recently opened new and expanded offices at 18228 Mack Ave. in Detroit, Mich.

Ensolite, U. S. Rubber's cellular plastic, is finding new use in a new type of protective padding for football players. The padding, now in use by professional and collegiate teams, is said to offer outstanding shock absorbing properties.

The American Legion's national award for an "outstanding record in employing servicemen and handicapped veterans" was recently presented to Goodyear.

Foxboro Co., Foxboro, Mass., has opened a new branch office at 1117 La Paloma St. in Amarillo, Texas. This is the company's sixth branch in Texas.

The physical properties of natural rubber compounds containing 50 parts of Vulcan 3, 6 and 9 are presented in Technical Report No. R-10 published by Godfrey L. Cabot, Inc., Cambridge, Mass.

The National Safety Council, 425 North Michigan Ave., Chicago 11, Ill., has made available a booklet covering accident rates for 1952 in the rubber industry.

New Resin Emulsion Tackifiers

American Resinous Chemicals Corp. of Peabody, Mass., has announced two new resin emulsion tackifiers, "Arcco 25 and 26". Designed to develop fast-breaking (fast-setting) emulsion adhesives, these new emulsions develop fast breaking properties without loss of emulsion stability, the company states. Formulated for use with natural, neoprene or GR-S latices, these emulsions are said to represent an answer to many compounding problems. In the shoe industry, side lasting and sock lining cements can be greatly improved through the use of both emulsions. Many other industrial applications, such as carton sealing or adhesives involving fabric, paper or leather are suggested for these emulsions. Arcco 25 produces low viscosity, high strength adhesive bonds. Arcco 26 produces low viscosity, moderate strength bonds, but develops greater tack than do adhesives made with Arcco 25.

Chlorine Facility On Stream

Wyandotte Chemicals Corp of Wyandotte, Mich., has announced the bringing on stream of its new 300-ton chlorine unit, completing a broad expansion of its manufacturing and research facilities in Wyandotte. As a result of the program, Wyandotte has increased its output of soda ash by 20% and chlorine by 75%. The new chlorine plant, largest phase of the overall program, is now fully on stream with output at rated capacity.

AMA Publishes New Fact Book

The Automobile Manufacturers Association has announced publication of "Automobile Facts and Figures" for 1953, the 33rd edition of this work. The 80-page booklet of charts and graphs offers every conceivable statistic on the automotive industry. Copies are available from the AMA at the New Center Building, Detroit 2, Mich.

Stokes Promotes Greenwood

F. J. Stokes Machine Co. of Philadelphia, Penna., has appointed Samuel H. Greenwood district manager of a newly-enlarged territory with headquarters in Philadelphia, Penna. Formerly manager of extruder sales, Mr. Greenwood will now have charge of sales and service for all Stokes products in eastern Pennsylvania, upstate New York, lower New Jersey, Delaware, and the southeastern states extending as far as Florida. The new district office at 5500 Tabor Road, Philadelphia, is maintained as a separate unit at the Stokes headquarters. Assisting Mr. Greenwood in the new district office will be Walter E. Rayher and Joe D. Robertson. Larry Morehouse and Fred Hillsley have joined the Stokes sales staff and have been attached to the Philadelphia district office for training.

Plans New Preferred Stock

General Tire & Rubber Co. has scheduled a special meeting of stockholders for December 3 for the purpose of authorizing the creation of a new class of preferred stock. Exact details of the new stock will not be available until after clearance by the Securities and Exchange Commission. A company spokesman said that at the moment "there is no plan or idea for offering any of the preferred, if and when authorized."

To Expand Cryovac Facilities

Dewey & Almy Chemical Co. of Cambridge, Mass., has appropriated more than $1,000,000 for expansion of manufacturing facilities of its Cryovac Division with plants in Cedar Rapids, Iowa, and Lockport, N. Y. Present plans call for completion of the program by next spring in time to meet seasonal demands of the food packaging industry.

Thermoid Bonus Approved

At a recent meeting in Salt Lake City, Utah, directors of the Thermoid Co., Trenton, N. J., approved a bonus plan for the five plants of the company. The directors voted to set aside $75,000 to begin the project. This was the first time that the company's directors had met in Utah. One of the firm's plants is in Nephi in that state.

LOS ANGELES NEWS

The technical meeting of the Los Angeles Rubber Group held on October 6 at the Hotel Statler in Los Angeles, Calif., was addressed by R. M. Thomas of the Standard Oil Development Co. and W. H. Peterson of the Enjay Co. Mr. Thomas spoke on "Butyl Rubber: Manufacture and Research", while Mr. Peterson spoke on "Butyl—Present and Future." The non-technical portion of the meeting was attended by approximately 360 members and guests, and was sponsored by the Plastic & Rubber Products Co.

In his address, Mr. Thomas stated that there is mounting evidence that many future demands for rubber, including its use in tires, might best be filled by Butyl rubber. The product is the least expensive of all rubbers to manufacture, and is inherently more stable than other rubbers and therefore more resistant to attack by oxygen or ozone from the atmosphere.

The speaker described the manner in which Butyl rubber is made and showed a film which described the process in detail. The next part of his talk concerned itself with experimental work on Butyl tires. Striking improvements in the properties of Butyl are obtainable by new techniques of compounding and processing, he stated. The improved materials are more elastic, tougher, stronger and more resistant to abrasion. These benefits are obtained by compounding ordinary grades of Butyl with a channel gas black followed by heating and mixing prior to the addition of curing ingredients.

Mr. Peterson stressed the point that Butyl in molded rubber products has not, up to this point, been fully explored by manufacturers. Probably the fastest growing field, he said, has been in molded mechanical goods. Here, Butyl offers exceptional properties which make it easier to meet quality requirements.

In summary, said the speaker, these are the improvements that can be obtained by the thermal interaction of Butyl with carbon black: physical properties, resilience, hysteresis, abrasion, low temperature, acid resistance, electrical properties, processing and aging. It is apparent that these changes should be of significance in making present products better and in contributing to the development of new products for the future.

U. S. Rubber Co. has broken ground for its new foam rubber plant in Santa Ana, Calif., which it hopes will be in production by February, 1954. The new plant, which will manufacture Koylon foam rubber cushions for use in the automotive industry and in the furniture industry, marks an important step in the company's over-all expansion plans for West Coast manufacturing facilities. The plant will be the firm's third manufacturing unit for foam rubber products and its sixth major expansion for the manufacture of Koylon foam since World War II.

Located on a 55-acre tract, the first unit of the new plant will contain 66,000 square feet of floor space and provide the most modern foam rubber manufacturing facilities available. When completed, the unit will initially employ approximately 150 persons. The plant will be of one-story construction in modern industrial architecture.

Baker Castor Oil Co. has opened a new sales office at 640 Gilman St. in Berkeley, Calif. Marvin C. Rasmussen has been placed in charge of the office which will service all accounts in the Bay Area. Before joining Baker Castor Oil, Mr. Rasmussen was employed as a technical service engineer in the Research and Development Division of S. C. Johnson & Son, Inc.

Farrand Optical Co., Inc., has announced the opening of a West Coast engineering office at 5896 West Adams Boulevard, Culver City, Calif. R. A. Hamilton, formerly associated with the Lockheed Aircraft Co., has been appointed consulting engineer at the office. E. L. Fischer, long associated with the company, has been named technical representative at the new office.

A new distributing branch and warehouse has been opened by the U. S. Rubber Co. at Soto and East 46th Sts. in Los Angeles. The building provides district sales offices and warehouse areas for U. S. Tires; Fisk and Gillette Tires; footwear and general products; wire and cable; and mechanical goods divisions of the company.

Considerably larger than its previous warehouse in Los Angeles, the new location is 224 by 540 feet in size, which supplies 120,960 square feet of floor space. The newest types of equipment, designed to speed customer service, are available on the premises.

A 3,200 square-foot building to house the Research and Development Department of the W. J. Voit Rubber Corp. was recently opened in Los Angeles. The building, located on the site of the company's main plant in that city, will serve as headquarters for personnel engaged in experimentation, testing and development of rubber and rubber-covered athletic goods and automotive hose, camelback and tire repair materials.

B. F. Goodrich has opened a 251,200 square-foot addition at its Los Angeles plant that cost over $2,000,000. The expansion increases the plant's tire and tube production capacity by 20% and brings the plant's square feet of floor space to 776,690, one-third larger than it was early in 1951. Included in the improvement is a new $125,000 plant cafeteria. Goodrich officials stated that the company now has a capital investment in California of about $9,000,000.

A new stock-carrying factory warehouse and sales office has been established at 4384 East Bandini Boulevard in Los Angeles by the Quaker Rubber Corp., a division of the H. K. Porter Co., Inc. of Philadelphia, Penna. The new branch is under the supervision of James Joyner. The establishment of this new branch warehouse is in line with Quaker's policy to expand its distribution facilities to cover all important industrial areas.

Marvin E. Mellinger, associated with the tire and retreading business since 1920, has been appointed sales representative in the Camelback and Tire Repair Materials Division of the W. J. Voit Rubber Corp. of Los Angeles. He has been assigned the West Los Angeles, South Bay, Santa Monica and Harbor areas of Southern Cailfornia.

The November 3rd meeting of the Los Angeles Rubber Group which was to have been held at the Hotel Statler in Los Angeles, Calif., was to have featured an address by Dr. C. W. Sweitzer of the Columbian Carbon Co. on "The Reinforcement Potential of SAF Black". A report on this meeting will appear in the December issue of RUBBER AGE.

John Liljegren, chief chemist of the Pioneer Rubber Mills for the past 33 years, announced his retirement on November 1.

ADM Names Westwood Chemical

The Chemical Products Division of Archer-Daniels-Midland Co., Cleveland, Ohio, has announced the appointment of the Westwood Chemical Co. with offices at 520 Fifth Avenue, New York 36, N. Y., as New York Sales Agent for "ADM Rubber Makers Stearic Acid." Lester J. Koch, formerly vice-president and eastern sales manager for the Witco Chemical Co., will direct activities at Westwood Chemical's New York office. Archer-Daniels-Midland was an early pioneer in the processing of Rubber Makers Stearic Acid and has been a constant supplier of this material to the rubber industry. In addition, the company produces fatty chemicals in the form of acids, alcohols, glycerides and sperm oils for practically every industry in America.

American Viscose Akron Office

American Viscose Corp. has opened an office at 2304 First National Tower Building in Akron, Ohio for the sale of high tenacity rayon to the tire industry. Cyril Sumner, Jr., has been placed in charge of the office, under Frank T. Williams, of New York, manager of the Rayon Tire Yarn Sales Division. Mr. Sumner was formerly associated with the general sales office in New York. He had previously been associated with the Providence, R. I., sales office for thirteen years. Mr. Sumner is a graduate of Yale University with a B. A. degree.

Fatty Acid Trend in Rubber Making ☆☆☆☆☆ General Mills Aliphats for Sponge Rubber ☆☆☆☆☆ Many Types Available

HAVE YOU TRIED using a mixture of fatty acids in the manufacture of sponge rubber products? An interesting trend has developed toward the use of special fatty acid mixtures. Experience suggests that a mixture of General Mills Aliphat 44-B (approximately 75 percent) and Aliphat 6-C (approximately 25 percent) will give you superior results.

General Mills Chemoil Plant at Kankakee, Illinois

Today's modern technology enables you to use those mixtures best suited for your specific needs.

The combination of Aliphats 44-B and 6-C, for instance, gives excellent blow in the manufacture of sponge rubber . . . leaving the rubber with a springy texture, small, even pores, and a moderate skin thickness. Aliphats 44-B and 6-C help generate the gas that blows up the rubber, help accelerate vulcanizing, help disperse the pigments within the rubber mass, and help to plasticize the rubber.

Not only will General Mills Aliphats help you produce a good sponge rubber by performing the above functions, but also, you will save money.

If you would like samples or technical information on General Mills Aliphats (fatty acids), just mail the coupon below.

☆☆☆☆☆

CONTROLLED DISTILLATION processes used by General Mills guarantee that manufacturers will receive fatty acids of high quality and uniformity.

General Mills Aliphat 44-B, for example, is an unsaturated fatty acid produced from tall oil. Its outstanding properties permit the use of Aliphat 44-B in a number of industrial applications—liquid and jell type soaps, latex foam rubber, synthetic oils, ore flotation, special polishes, and carbon paper. These and other uses illustrate the adaptability of Aliphat 44-B. It seems to have a possible application wherever unsaturated acids with a low titer are required.

Determining Linoleic Acid Content with Cary Recording Spectrophotometer

Aliphat 6-C, on the other hand, is a saturated acid of excellent quality. It has good stability and will perform effectively and economically wherever lighter color is not required. This Aliphat has a saturated acid ratio of approximately 60 per cent palmitic acid and 40 per cent stearic acid. Besides its recommended use in sponge rubber, Aliphat 6-C has proved very useful in metallic soaps, buffing compounds, and emulsifiers.

In addition to Aliphats 44-B and 6-C, General Mills has specialized fatty acids for the various rubber manufacturers. For sponge rubber there are Aliphats 44-B, 6-C and 33-B; for foam rubber Aliphats 44-A and 44-B; for dense rubber Aliphats 6-R and 7-R. For samples or technical data, please mail the coupon below.

☆☆☆☆☆

THE MOTTO of General Mills research laboratories is "Progress Thru Research." We like to think this motto explains much of the success of General Mills as a vigorous and expanding manufacturer of foods, feeds, household appliances, and chemical products for industry.

General Mills has developed and improved a wide variety of industrial fatty acids. These General Mills Aliphats have a record of successful performance in many industries—rubber, paper, mining, lubricants, waxes and polishes, cosmetics, protective coating, soaps, insecticides, detergents, and others.

General Mills Pilot Plant for Fatty Acids Experimentation

If you do not have technical information on the fatty acids available from General Mills, just mail the coupon below.

There is an ALIPHAT for your specific need.

General Mills ☆☆☆☆☆

CHEMICAL DIVISION
KANKAKEE, ILLINOIS

Please send me samples and technical information on General Mills Aliphats (fatty acids).

NAME_____

FIRM_____

ADDRESS_____

CITY_____ STATE_____

PRODUCT—(type of rubber)_____

progress thru research

CANADIAN NEWS

The publicly-owned, $70,000,000 synthetic rubber plant at Sarnia, Polymer Corp., is to be offered for sale to private interests, according to reports persistent in Ottawa. Canadian Government officials, however, say no deal is pending for the sprawling plant which has been a financial success since it began operations in 1942.

Defense Production Minister Howe is on record as saying the Dominion Government shouldn't be in business to any greater extent than was necessary. Justification for the launching of the Polymer project was found in the fact it was a hurry-up development, with costs at the outset having to take second place to the necessity of getting it into operation without delay. It was operated profitably, however, almost from the day it opened.

The Polymer establishment was started in 1942, when the entry of Japan in the war threatened to cut off Canada's supply of natural rubber. It was rushed to completion in 1944. Polymer is still said to be the only completely integrated rubber plant on the North American continent.

During the later stages of World War II, the plant supplied the synthetic rubber required for Canada's military machine, as well as for civilian requirements. The Canadian market for synthetic rubber contracted sharply at the war's end, but export markets were opened up in Europe and the United States. Sales to other countries last year totaled about $200,000,000.

The plant, long regarded as "Howe's baby," since it was started by Canada's defense production minister when he was in charge of the munitions and supply department, employs about 2,400 people with a payroll of more than $6,500,000. Recently when Mr. Howe was asked if the Government would sell Polymer, he said: "If we can get what we ask for it, sure we'll sell it."

The Fifth Canadian High Polymer Forum will be held at London, Ont., November 19 and 20, 1953. Meetings will be held in the Auditorium of the London Public Library and Museum, Queen's Avenue, London. Hotel accommodation will be at the Hotel London, a short distance away at the Corner of Wellington and Dundas Streets. Information and reservations may be obtained from Dr. H. Leverne Williams, Polymer Corp. Ltd., Sarnia, Ont., Canada.

As part of the Forum there will be an address by D. P. Riley of the Royal Institution, London, England, and a group dinner. The Committee will arrange visits to the University of Western Ontario and local industries for those wishing to do so. Dr. S. Bywater, chairman, has released the following list of papers accepted by the program chairman;

(1) "Application of Theoretical Dilute Solution Viscosity Equations to Commercial High Molecular Weight Copolymers" by R. B. MacFarlane and L. A. McLeod, Research and Development Division, Polymer Corp., Ltd., Sarnia, Ont.

(2) "Stress-Temperature-Time Studies Through the Second Order Transition Region" and "Measurements of the Dynamic Shear Modulus in Solid Polymers at Ultrasonic Frequencies" by D. G. Ivey, University of Toronto, Toronto, Ont.

(3) "The Kinetics of the Thermal Decomposition of 22' Bisazoisobutyronitrile" by M. Talat-Erben and S. Bywater, National Research Council, Ottawa, Ont.

(4) "The Oxidative Degradation of Polystyrene, Polybutadiene and Polysar" by D. Graham and C. Sivertz, University of Western Ontario, London, Ont.

(5) "The Thermal Degradation of Carrageenin" by C. R. Masson and A. N. O'Neil, National Research Council, Maritime Regional Laboratory, Halifax, Nova Scotia.

(6) "The Mechanism of Depolymerization" by L. A. Wall, National Bureau of Standards, Washington, D. C.

(7) "A Comparison of the Flow of High Polymers in the Cavity of a Mooney Plastometer" by D. S. Fenson, Ridley, College, St. Catherines, Ont.

(8) "The Preparation of Ion Exchange Resins" by I. H. Spinner, J. Ciric and W. F. Graydon, University of Toronto, Toronto, Ont.

(9) "The Effect of Solubilization on the size and Interaction of Polysoap Molecules" by U. P. Strauss, Rutgers University, New Brunswick, N. J.

(10) "Heats of Combustion of Organo Silicon Compounds and Polymers" by V. B. Goldblum, L. S. Moody and F. E. Satterthwaite, General Electric Co., Pittsfield, Mass.

(11) "Contact Angle Measurements on Latex Films and Their Relationship to the Constitution of Latex" by W. Rupar and H. Leverne Williams, Polymer Corp., Ltd., Sarnia, Ont.

(12) "Phenyl Monosulfide Copolymer Resins" by A. D. Macallum, London, Ont.

(13) "The Structure of Butadiene Dimers Produced by Free Radical Catalysis" by L. Gendron and R. V. V. Nicholls, McGill University, Montreal, Que.

(14) "Photosensitized Polymerization of Acrylonitrile in Aqueous Solution Employing Ion Sensitizers" by D. James, Cambridge, University. (National Research Council, Ottawa, Ont.).

(15) "The Studies of the Relationship of the Huggins K' to Molecular Structure of Diene Copolymers" by L. H. Cragg, McMaster University, Hamilton, Ont.

(16) "Ionic Polymerization. Ion Pair Chain Mechanisms. Retardation and Chain Transfer in the Styrene System" by C. G. Overberger and Gerard F. Endres, Polytechnic Institute of Brooklyn, Brooklyn, N. Y.

(17) "The Adsorption of the High Polymers" by Robert Simha, New York University, New York, N. Y.

(18) "Assignment of Structure to Cellulose—3,6-Dicitrate" by E. L. Falconer and C. B. Purves, McGill University, Montreal, Que.

Ira G. Needles, president of the B. F. Goodrich Rubber Co. of Canada, Ltd., sees the need for further capital expansion in Canada. In predicting continuing prosperity in 1954, which he believes will probably be the greatest year in the country's history, Mr. Needles said there is real concern as to whether Canada has adequate production facilities to take care of her growth. There is need, he continued, for further private investment in plants and equipment as a safeguard to Canada's future.

Rapid development of the country's natural resources, continuing immigration, nearly stable price levels and the high value of the Canadian dollar he listed as factors indicating continued prosperity. However, he warned, the government must face squarely the problems that will arise if taxes on durable goods are not eased promptly. In order to maintain high sales volume and full employment, the government, he declared, will be required to reduce unduly high taxes on those durable goods which are necessities to the current high standard of living.

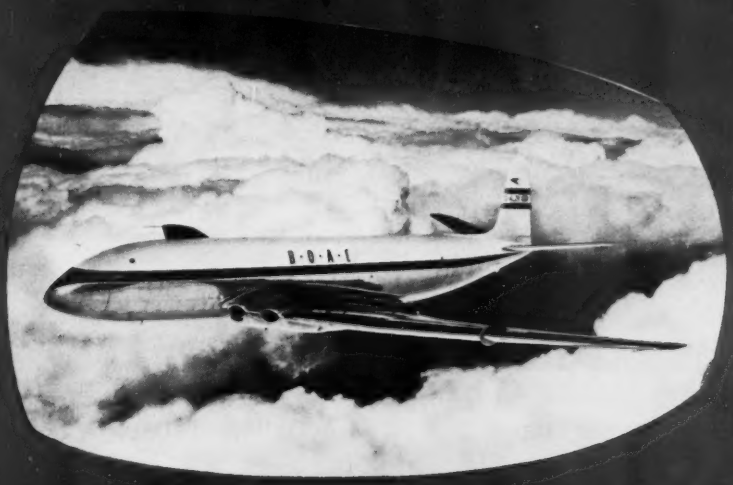
W. Alexander McCune, Jr., has been appointed general sales manager of Norton Co. of Canada, Ltd. A former abrasive engineer in the northern New Jersey area, Mr. McCune succeeds C. W. Fell who has become an abrasive engineer in the Toronto area. Ill health has forced Mr. Fell to take a less strenuous part in the company's sales program.

Winton A. Vagedes has been appointed an abrasive engineer and will assume Mr. McCune's former territory. He is a former department manager and abrasive specialist at the C. W. Marwedel Co. in San Francisco, a Norton distributor. He is presently completing a Norton training course.

Mr. McCune has been with Norton since 1940 except for two years during the War when he served as a Naval officer aboard a destroyer escort. A graduate of Dickinson College, he is a member of the American Society of Tool Engineers, American Society of Carbide Engineers, and is active in Masonic circles.

Dunlop Tire & Rubber Goods Co., Ltd., announced it plans immediate construction of a tire manufacturing plant on a 56-acre site in Whitby, Ont. The announcement by J. P. Anderson, Dunlop Tire president and general manager, said the plant is expected to be in operation by the spring of 1955 and will initially employ about 200 people. Some of the present operations of the Toronto Queen St. East works will be transferred to Whitby to make room for production of other products in the Toronto plant.

The Dunlop Tire plant will be located in Whitby's new heavy industry zone south of Highway 401 and the CNR tracks. Single-story, the new plant will feature extensive use of glass, aluminum panel facings and interior color dynamics. New



IN AIR TRANSPORTATION . . .

BOAC's De Havilland Comet—the world's first jet commercial airliner is the forerunner of the latest advance in luxurious air transportation. Its 500 m.p.h. speed further reduces our rapidly shrinking globe.

Setting new standards of **PROGRESS**

IN THE RUBBER INDUSTRY . . .

Constant advancement in service and progressive business management are the reasons why Muehlstein is a leading supplier to the rubber industry today as it has been for over 40 years.

H. MUEHLSTEIN & CO.
INC.

60 EAST 42ND STREET,
NEW YORK 17, NEW YORK

BRANCH OFFICES: Akron • Chicago • Boston • Los Angeles • Memphis • WAREHOUSES: Akron • Chicago • Boston • Los Angeles • Jersey City
CRUDE RUBBER, SYNTHETIC RUBBER, SCRAP RUBBER, HARD RUBBER DUST, PLASTICS

equipment already on order for it includes the most modern high pressure mixing units and batteries of automatic shaping and curing machines of a kind never before used in production in Canada.

Mr. Anderson said consumption of truck and passenger-car tires in Canada has increased by 205% in the last 20 years, and 38% in the last six years, and indications are for a possible further rise of another 50% by 1962.

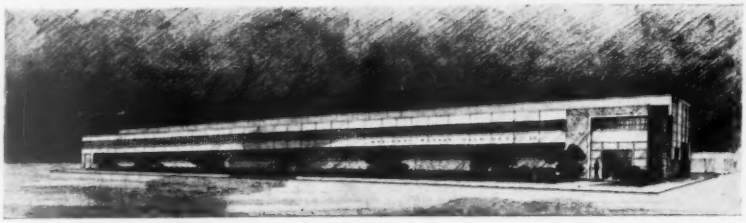
Nopco Chemical Co., Harrison, N. J. has announced an important addition in the purchase of the controlling interest of Yocum Faust, Ltd., of London, Ont., Canada. The subsidiary company will continue to operate under its original name, Yocum Faust, Ltd. This addition gives Nopco facilities for production and distribution in Canada of its widely diversified line of industrial processing chemicals. Nopco, founded in 1907, supplies over 300 chemical specialties including emulsifiers, lubricants, plasticizers, sizes, detergents, dispersing agents, metallic soaps, surface tension reducing agents, and defoamers. Yocum Faust, Ltd., will supplement Nopco's service to these various industries; their plant is set up to perform sulfonation, esterification, refining, pressing and heat treatment. In addition, the Canadian company produces lard oils and neatsfoot oils and has pioneered in the development of processed rapeseed oil, used by the petroleum industry.

A two-mile strip of highway at Langstaff, Ont., (just outside Toronto's city limits), is being paved with a rubber compound, according to a recent announcement. The Ontario Highways Department is experimenting on a 10-mile stretch in which two miles of surface were rubber-paved and four miles on each side paved with regular materials. Success of the experiment will determine whether future roads will be of the usual materials, or rubber. Similar highways in Holland and the United States have exhibited greater lasting power than conventional types. The two-mile rubber section was constructed with a natural rubber additive in the asphalt mix.

Wire and Cable Symposium Plans

The second annual Wire and Cable Symposium sponsored jointly by the Signal Corps Engineering Laboratories, Fort Monmouth, N. J., and by the wire and cable industry will be held on December 14, 15 and 16 at the Berkeley Carteret Hotel in Asbury Park, N. J. A program covering wire and cable material, their characteristics and uses, will include papers on wire and cable constructions together with manufacturing and equipment problems, field construction methods and uses in systems operation. All agencies, companies or individuals who attended the first annual symposium will be contacted. Others interested in attending can obtain further details by contacting H. L. Kitts, Cole Signal Laboratory, Red Bank, N. J. Mr. Kitts can be reached by telephone at Eatontown 3-1060, extension 87488.

NATIONAL RUBBER MACHINERY ANNOUNCES EXPANSION AT AKRON PLANT



National Rubber Machinery Co. has announced a $500,000 expansion program for its Akron, Ohio, extruder plant, as a result of steadily increasing demands by the rubber and plastics industries. Construction is already under way on the new plant building, which will be 400 feet long and 62 feet in depth. The building will feature a self-contained plant office and a modern cafeteria for the convenience of its 260 employees. The drawing above (courtesy of Beiswenger & Hoch, Architects), shows how the new plant will appear when it is completed in the Spring of next year.

To Build Passenger Conveyor

A contract to build the world's first passenger conveyor belt system has been awarded to the Goodyear Tire & Rubber Co. and the Stephens-Adamson Manufacturing Co. by the Hudson and Manhattan Railroad Co. Officials of the cummutor line, which serves downtown Manhattan and Metropolitan New Jersey, announced that the 227-foot "Speedwalk" (trade name for moving sidewalks) will be installed in the ramp portion of the connecting tunnel between Erie station and the Hudson and Manhattan tubes at Jersey City as a covenience to patrons. The passenger belt system includes a rubber conveyor belt moving at approximately one and one-half miles per hour and two handrails moving at the same speed. Operated by push-button controls, it will be reversible in direction to handle rush hour crowds to and from the tubes. The system will negotiate a 10% grade on the ramp. Passengers will have the option of being carried up the steep grade at a mile and a half an hour or adding their own walking speed to the speed of the belt for a faster trip. Although many designs for Speedwalk systems and passenger conveyor belt systems employing cars are being made by engineers for the two firms, this will be the first commercial application of Speedwalks.

Ruscoe Grit Grip Kit

With the approach of winter, safe footing during inclement weather is a constant problem. One solution to this seasonal dilemma is the "Grit Grip Kit," packaged and distributed by the W. J. Ruscoe Co. of Akron, Ohio. Compact, it contains a half pint of Pliobond, Goodyear's all-purpose flexible rubber adhesive; a third of a pound of carborundum grit; a brush applicator and working instructions. The Pliobond is used for the adhesion of one surface to another and the grit, applied to the Pliobond, results in a rough, durable non-skid traction tread for dangerous foot surfaces. The kit can be used to re-surface shower room floors, tread walks, metal stairs, etc. It can also be used for footwear and all types of sporting boots.

4-Vinylpyridine in Production

Reilly Tar & Chemical Corp., Indianapolis, Ind., has started commercial production of 4-vinylpyridine, according to a recent announcement. The polymers from 4-vinylpyridine are higher melting than those from 2-vinylpyridine and are less soluble in organic solvents. 4-vinylpyridine forms polymers and copolymers, a property that suggests its use in formulations for bonding rubber. The affinity of the pyridine nitrogen suggests the usefulness of the product in improving the dyeing characteristics of some of the synthetic fibers. In addition to its ability to form polymers, 4-vinylpyridine undergoes many chemical reactions. It reacts with sulfurous acid to give pyridylethane sulfonic acid; with nitrous acid it gives nitroethylpyridine; with alcohols, pyridylethyl ethers are formed; amines give pyridylethylamines; mercaptans form pyridylethyl mercaptans, and ketones form pyridyl ketones. Samples of 4-vinylpyridine are available from the company.

Develops Silicone Nipples

General Electric Co. has announced the development of a silicone rubber nipple for baby bottles. The company states that the silicone rubber nipples withstand heat better than other types, which means that they can be boiled daily for as long as 15 minutes without softening. Ordinary nipples, the company maintains, are usually limited to a three-minute sterilization. The new nipples won't clog as easily either, G-E states. Baby himself will even appreciate the silicone rubber nipples, because there is no "rubbery" taste or smell. G-E has been testing the new nipples for some time, but infants won't be able to use them until and unless manufacturers decide whether consumers will pay a higher price than is normally required for such products. The company expects, however, that the higher price will be offset by the product's extra features.

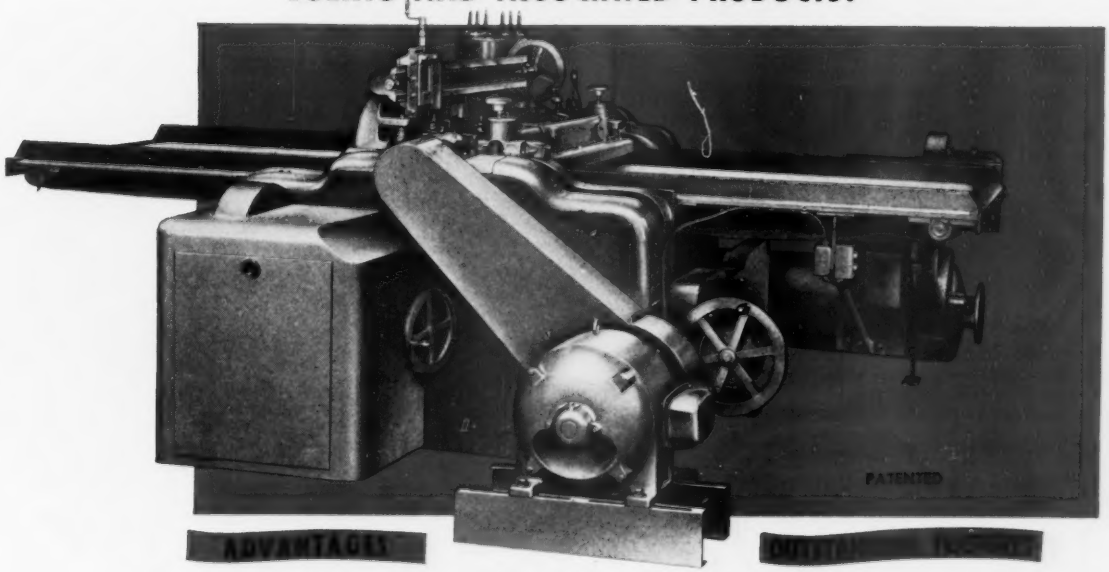
Tired of waiting for this copy of RUBBER AGE to reach your desk? Use the coupon on page 313.

Announcing

The MICRO-SURFACER

with CARBOLOY KNIFE CUTTERHEAD®

A Sensational ADVANCE IN PRECISION SIZING OF MOLDED RUBBER FLOORING, SOLING AND ASSOCIATED PRODUCTS!



ADVANTAGES

1. Insures uniformity with precision accuracy — .001" tolerance.
2. Eliminates dirt and grit.
3. Provides excellent gluing surface.
4. Greatly increases production.
5. Reduces maintenance time.
6. Production is continuous.
7. Capacity: up to 50" widths.
8. Handles thin as well as thick stock.
9. 15,000 sheets between knife grinds.
10. Removed material is salvageable.

OUTSTANDING FEATURES

1. Carboloy knives.
2. Cutterhead speeds up to 5,000 RPM.
3. Variable feed.
4. Built-in grinding unit for knives.
5. Hard Chrome wearing surfaces.
6. Conveyors can be built into machine.
7. Adjustments graduated in thousandths.
8. Finger tip control.
9. Great flexibility of operation.
10. Rubber and chrome feed rolls gear-driven for positive feed.

THE MICRO-SURFACER'S conveyors feed stock to the four feed rolls, the upper two of which are rubber, and the lower two, steel chrome plated. Molded sheets are thus brought under a high-speed rotating cutterhead having carboloy knives. Thin stock is held firmly during the cutting operation by a patented work platen. Tolerances of .001 are easily held.

THOROUGHLY PROVED by more than two years of continuous production on rubber flooring molded sheets, prior to being offered to the trade, the MICRO-SURFACER is entirely perfected . . . a machine that will give you a better product, increase production and save its cost in short order. Write or call us for specifications and further information.

BUSS
ESTABLISHED 1862

Manufacturers of High Spindle Speed Machinery

BUSS MACHINE WORKS

OBITUARIES

Gaston F. DuBois

Gaston F. DuBois, a consulting chemical engineer, board member and former vice-president of the Monsanto Chemical Co., died on November 1 in St. Louis, Mo. He was 73 years old. Born in Switzerland, Mr. DuBois joined Monsanto in 1904 and remained with it until his retirement in 1945. For twenty-one years he was a vice-president, directing technical production, research and development. He received many awards during his career, including the Perkin Medal, the chemical industry's highest honor, in 1943. When the award was made, there were some who said Mr. DuBois' contributions to the manufacture of phenol were the most outstanding of his long career. Mr. DuBois had also been active in the development of Monsanto's process for making styrene. He was credited with helping to make the United States independent of foreign supplies of critically needed dyes and drugs during World War I. Honorary Swiss consul in St. Louis for many years, he had also served on the St. Louis Municipal Smoke Committee. His widow, two sons and a daughter survive.

Charles Slaughter

Charles Slaughter, former president of the Commodity Exchange, Inc., and former president of the old Rubber Exchange in New York, died on October 28 at his home in New York City. He was 66 years old. A specialist in all aspects of commodity futures trading, Mr. Slaughter had been head of Charles Slaughter & Co., which was dissolved in 1950. He was president of the Rubber Exchange in New York before it was merged in 1933 as the Commodity Exchange, Inc. Instrumental in the formation of this latter body, Mr. Slaughter served as a governor, headed its Rubber Section and was president in 1939-40. During World War II, Mr. Slaughter was a civilian consultant to the War Department and the Bureau of Economic Warfare. He made a post-war survey of tin mining conditions in Malaya for the government. He is survived by his widow.

Burton F. Stauffer

Burton F. Stauffer, former president and general manager of American Anode, Inc., a subsidiary of the B. F. Goodrich Co., died recently in Akron, Ohio. He was 74 years old. Born in Pennsylvania, Mr. Stauffer had been associated with Goodrich for 53 years before his retirement in 1946. Joining the company in 1893 in the Bicycle Tire Department, Mr. Stauffer served the company in various production and sales capacities and was assistant general manager of the Industrial Products Sales Division at the time of his election to head American Anode in January, 1944.

Charles W. Yelm

Charles W. Yelm, retired vice-president of the Gates Rubber Co., Denver, Colo., died on June 23, according to a recently received report. Mr. Yelm first came to work for Gates Rubber in 1918 and for six years was in charge of the Tire Division and the Service Department. In 1932 he created a new department which, under his direction, grew up to be today's Business Research Group. He directed this latter organization until his retirement on December 1, 1949. Besides being a member of the Board of Management of Gates Rubber, Mr. Yelm served on the Budget Committee for the company as well as on the Production, the Salary Policy, the Financial and the Equipment Committees. Mr. Yelm was also active in the management of the Copolymer Corp. of Baton Rouge, La., of which he was a vice-president. Mr Yelm was a native of Lafayette, Ind., where he obtained a degree in civil engineering from Purdue University. He is survived by his daughter.

F. Howard Smith

F. Howard Smith, special foreign representative of the General Tire & Rubber Co. for the past fifteen years, died on October 25 in Washington, D. C. He was 60 years old. Born in Chicago, Ill., Mr. Smith was educated at Cambridge University in England. Before joining General Tire in 1938, Mr. Smith had been associated with the Firestone Tire & Rubber Co. for a period of eight years. During World War I, he served in the British Intelligence Corps in the Far East and during the last war, Mr. Smith was a commander in the U. S. Naval Intelligence Service in the China-Burma-India area. He leaves his widow.

William S. Gardiner

William S. Gardiner, executive vice-president of the Neville Chemical Co. of Pittsburgh, Penna., died suddenly at his home on October 17. He was 67 years old. Formerly associated with the Pennsylvania Railroad, Mr. Gardiner had been with the Neville company since its inception in 1925. He was the first president of the Traffic and Transportation Association in Pittsburgh and was a member of the Duquesne Club. Mr. Gardiner is survived by his wife, a daughter and two sons. Burial was in Jefferson Memorial Park on October 20.

Arthur C. Ewer

Arthur C. Ewer, manager of the Brooklyn plant of the Bemis Bro. Bag Co., died on October 19 at his home in Brooklyn, N. Y. He was 71 years old. He is survived by his wife, two daughters and a son.

Dubl-Grip Gas Hose Coupling

A re-attachable fitting for gasoline pump hose which is said to increase the life of the hose by as much as ten times has been developed by Hewitt-Robins Inc., Stamford, Conn., in cooperation with the International Coupling Co. Named the "Dubl-Grip", the coupling is a brass, polished chrome unit, containing a hexagon outer sleeve for ease in installing. It is available in sizes to fit hose ¾ inch internal diameter having 1⅛ inch outside diameter. The coupling is expected to result in the saving of much time and expense in service stations troubled with failure of pump hose behind the coupling at the nozzle end. Engineers who worked on the development report that hose fitted with the new coupling in laboratory tests endured 200,000 cycles of flexing and twisting. The usual number is said to be about 20,000.

Pigment Data Bulletin Series

Columbia-Southern Chemical Corporation has begun the issuance of a new series of pigment data bulletins. In this connection, it has devised and is currently furnishing the trade with a special ring binder to hold the new bulletins. As a first step, the company has revised and condensed all previous sheets on Silene EF into one bulletin of basic data. This will be followed in time by similar revisions of information on Calcene and Hi-Sil. By keeping these bulletins intact in the new ring binder, the compounder will eventually have an easy, convenient reference to non-black pigments in one volume. Information pertaining to the bulletins may be secured from R. M. Simpson, Columbia-Southern Chemical Corp., 1 Gateway Center, Pittsburgh 22, Penna.

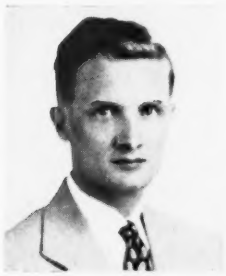
Samuel A. Fraine

Samuel A. Fraine, owner of Fraine Machine Specialties in Cuyahoga Falls, Ohio, and formerly associated with the National Rubber Machinery Co., died on October 3 at his home in Akron. He was 71 years old. Prior to the time he entered business for himself, Mr. Fraine was affiliated with National Rubber Machinery in an executive capacity at its plant in New Jersey and in Europe. Services were held on October 8 in the Barr Funeral Home in Lewistown, Ohio, with interment in Mt. Rock Cemetery in Lewistown. Mr. Fraine leaves his wife.

Robert A. Witherspoon

Robert A. Witherspoon, former chairman of the Executive Committee of Shawinigan Chemicals, Ltd., died on October 25 at his home in Hampstead, a suburb of Montreal, Que., Canada. He was 77 years old. A native of Rochester, N. Y., Mr. Witherspoon was an electrochemical engineer with the United Barium Co. of Niagara Falls, N. Y., around the turn of the century. He went to Shawinigan Falls, Que., in 1904, as superintendent of the Shawinigan Carbide Co. He retired in 1942.

Ready to serve you are Technical Sales Representatives whose chemical and production experience may help you in compounding and procurement problems.



R. E. McELROY

R. J. SALYERDS

At 2595 East State Street, Trenton 9, New Jersey, branch offices are maintained under the management of R. J. Salyerds, a graduate Chemist with laboratory and factory experience in rubber compound development and production. Assisting him is R. E. McElroy, also a graduate Chemist with factory and laboratory experience. Warehouse facilities are provided in connection with the Trenton branch office. Their telephone is 4-3137.

Harwick offers a complete line of materials, precision tested for the compounding of all types of rubbers and plastics:

SYNTHETIC RESINS —
- PICCOUMARON ..... Para Coumarone Indenes
- PICCOLYTE ..... Hydrocarbon Terpenes
- PICCOPALE ..... Hard Hydrocarbon Resins
- PICCOLASTIC ..... Styrene Resins
- RESINEX ..... Aromatic resin type softener

PLASTICIZERS —
- POLYCIZER 162 ..... Dioctyl Phthalate
- POLYCIZER 332 ..... Dioctyl Adipate
- Dicapryl Phthalate
- Dibutyl Phthalate
- Tricresyl Phosphate

RUBBER SUBSTITUTES — Vulcanized Vegetable Oils

FILLERS —
- Clays and Whitings
- Silene EF — Reinforcing Pigment

MOLD AND STOCK LUBRICANTS.

MAGNESIUM PRODUCTS.

CASEIN.

RUBBER-TO-METAL BONDING AGENTS ..... THIXON

STABILIZERS —
- STABELAN ..... E, HR Paste, Liquid and Powder

COLORS —
- STANTONE MBS Masterbatch)
- STANTONE GPE (Ground Polyethylene)
- STANTONE PC (Flushed)
- STANTONE Dry Colors (Pigment)
- STANTONE Rubber and Vinyl Inks.

HARWICK STANDARD CHEMICAL CO.
AKRON, BOSTON, TRENTON, CHICAGO, LOS ANGELES

Resin emulsions for natural, GRS, Neoprene and Buna N latices offer many new properties in addition to the standard requirement of increased tack.

Case History #235

Customer needed improved tensiles and water resistance from a GRS latex compound — at a low cost. Many experiments with clays and other fillers failed to meet the requirements — but ARCCO resin emulsion gave the GRS latex the added qualities needed.

You too can get better tensiles from GRS latices and lower emulsion costs with GRS as well as with other latices. These and many other applications are possible through the use of ARCCO resin emulsions.

What is your problem? Whether it is standard or unique we would be glad to have the opportunity of helping you reach a satisfactory solution. Write today.

ARCC

AMERICAN RESINOUS CHEMICALS CORPORATION

RESIN EMULSIONS, SOLUTIONS AND HOT MELTS FOR ADHESIVE BASES, BINDERS, COATINGS, SIZES AND SATURANTS

GENERAL OFFICES: *103 FOSTER STREET, PEABODY, MASSACHUSETTS*

IN CANADA: American Resinous Chemicals of Canada, Ltd., Toronto, Canada

NEW GOODS

"Honest Abe Yokum" Doll

The new "Honest Abe Yokum" doll, patterned after the celebrated son of the famous comic strip couple, L'il Abner and Daisy Mae Yokum, has been introduced by the Ideal Toy Corp., New York, N. Y. Made of latex

with a vinyl head, the doll is dressed in Dogpatch-style overalls, T-shirt, knitted hat and baby booties. He stands 11-inches high. By means of a built-in voice box, he cries realistically when squeezed.

U. S. Royalite Sprinkler

The first garden sprinkler hose said to insure uniform pressure throughout its entire length has been developed by the Mechanical Goods Division of the U. S. Rubber Co. In addition to assuring lawnowners of an even water supply for their grass and other gardening needs, the hose, called the "U. S. Royalite Sprinkler Hose" has special couplings at both ends permitting extra sections of hose to be added. Until this new coupling was developed, sprinkler hose could not be lengthened with additional pieces of hose to reach all parts of the lawn. The new coupling also allows the hose to be easily flushed out in the event of any silt accumulation.

Containing four tubes, of which three are perforated for spraying, the vinyl hose uses the fourth channel to carry the water the full length of the hose where it is forced by a brass cap back into the other tubes. This reverse action keeps the pressure equal throughout the hose. In other types of sprinkler hose, water pressure was strongest in the immediate area of the intake and diminished as the water traveled the full length of the hose. The new hose is made with the under side flat preventing twisting or turning while in use. When turned over, with the unperforated side up, it may be used as a soaker. The hose, which weighs two pounds in the 50-foot length, will also be made in 25 and 75-foot lengths.

Clarabell Bend-Me Toy

Ben-Her Industries, 11 West 42nd St., New York 36, N. Y., has introduced "Clarabell," a new "bend-me" toy made of foam rubber. The toy is completely wired so that

it can be bent in any position. Twelve inches high, Clarabell's colors are non-toxic and washable. It comes packed in a polyethylene bag.

"Air-Lift" Cushioning

National Automotive Fibres, Inc., Trenton, N.J., has announced the addition of "Air-Lift," a foam rubber carpet cushion, to its line of floor coverings. The product is made from foamed natural rubber latex in its original state to retain the elasticity and rebound of the virgin rubber. Air-Lift's foamed rubber process requires the minimum use of fillers, resulting in a featherweight carpet cushion, which mean savings in freight and handling, as well as easy installation plus other features, the company states.

High Mileage!

SEE PAGE 170

Cuts up to— 36,000 ...pieces per hour
The
HOLMES
ROTARY STOCK CUTTER
FOR HIGH SPEED, LOW COST CUTTING OF EXTRUDED STOCK --PREPARATORY FOR MOLDING
Saves--Time...Labor...Material
In your plant--The HOLMES ROTARY STOCK CUTTER--will certainly minimize operating time...reduce high labor cost...and...save expensive material. Adjustable to handle stock up to 3" in diameter...cut pieces up to 3" in length...and...will cut up to 36,000 pieces an hour. Low initial cost--will quickly pay for itself.
WRITE OR WIRE FOR SPECIFIC DETAILS--regardless of your particular requirements. With 52 years know-how specializing in machinery and molds for the rubber industry--Holmes can help you solve your problems, too, just as they have for so many others. No obligation, of course.
SEND FOR ILLUSTRATED FOLDER...TODAY
Stanley H. HOLMES Company
Successor to Holmes Brothers, Inc.
440 N. Sacramento Blvd., Chicago 12, Ill.

Fast deliveries plus exceptional performance make EEMCO Mills and Presses your best buy. Save weeks of valuable production time. Some sizes are available for immediate shipment.

MILLS

for processing rubber and plastics, including LABORATORY MILLS for experimental work.

PRESSES

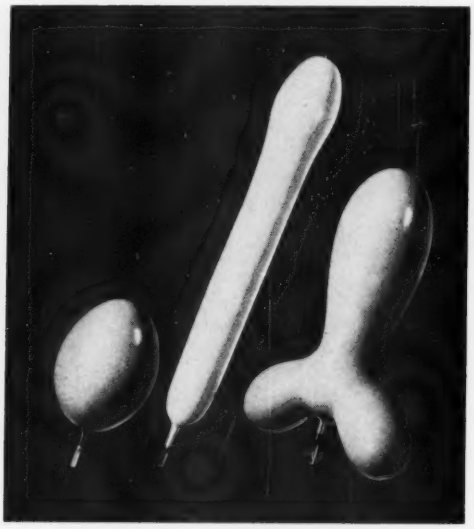
for compression, lamination, transfer and reinforced plastics molding —also LABORATORY PRESSES for experimental work.

EEMCO

ERIE ENGINE & MFG. CO.
12th ST. & EAST AVE., ERIE, PA.

Space Rocket Balloons

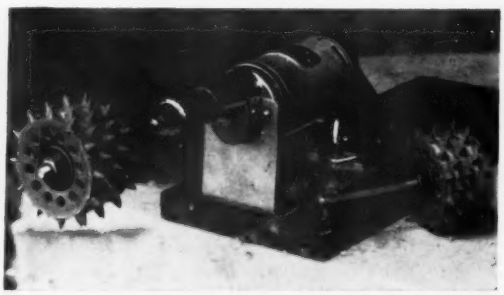
Oak Rubber Co., Ravenna, Ohio, has introduced a new line of "Space Rocket Balloons" which feature a special mouthpiece. This mouthpiece provides a hissing and roaring effect and enables the balloon to attain



altitude flight up to 30 feet. Three different models are offered, the "Space Flyer," which is round; the "Jet Rocket," an elongated type, and another "Jet Rocket" which features swept back wings. All three types are shown in the accompanying photograph.

Mechanical Duck Picker

Scott W. McKendree, 1893 Del Moro, Klamath Falls, Ore., has developed a mechanical picker designed to strip feathers from a duck. The unit consists of a rubber wheel with some 60 projecting rubber teeth. The wheel is attached to a motor and is designed to fit any power unit which has a ¼ inch or larger drill chuck. The minimum power required for operation is about 1/7 hp. Satisfactory speed is anywhere between 600 and 2000 rpm.



In operation, the bird is held against the moving wheel and the feathers removed by the flexible rubber teeth without any danger to the skin. The feathers fall mainly in a restricted area at the base of the unit and do not tend to fly around the room. Mr. McKendree states that the unit will pick feathers as fast as the large commercial pickers. The photograph above shows the rubber-toothed wheel affixed to the motor, ready for operation.

Trade Mark

HEVEATEX
CORPORATION
78 GOODYEAR AVENUE
MELROSE 76, MASS.

BRANCHES: CHICAGO, ILL. AKRON, O. DETROIT, MICH. LOS ANGELES, CAL.

Natural and Synthetic

Latex and Latex Compounds

for all purposes

HYDROCARBON

PANAREZ

RESINS

3-210

An OUTSTANDING

Rubber Compounding Resin

PROPERTIES
- Low Specific Gravity
- Odorless Solid
- Uniformity
- Improves Processing
- No Effect on Cure

FOR
- Better Flex Life
- Improved Abrasion Resistance
- Light Colors
- Oil Resistance
- Excellent Electrical Characteristics

EXCELLENT COMPATIBILITY with
- Natural Rubbers
- General Purpose GRS
- Cold Rubber GRS
- Buna N Type Rubbers
- Butyl Rubber

PAN AMERICAN CHEMICALS

PAN AMERICAN *Chemicals*

DIVISION

Pan American Refining Corp.

122 EAST 42ND STREET • NEW YORK 17, N. Y.

THE CARTER BELL MFG. CO.
SINCE
CARTER BELL PRODUCTS
1903
SPRINGFIELD, NEW JERSEY

Vulcanized
VEGETABLE OILS

rubber substitutes

Types, grades and blends
for every purpose, wherever
Vulcanized Vegetable Oils
can be used in production
of Rubber Goods—
be they Synthetic, Natural,
or Reclaimed.

A long established and proven product.

THE CARTER BELL MFG. CO.
SPRINGFIELD, NEW JERSEY

Represented by
HARWICK STANDARD CHEMICAL CO.
Akron, Boston, Trenton, Chicago, Denver, Los Angeles

Ace-Flex Tubing

"Ace-Flex", a new all-purpose, transparent plastic tubing with unusual flexibility, has been announced by American Hard Rubber Co., New York, N. Y. Ideal for any temporary or permanent fluid lines where easy-to-handle, sturdy, flexible tubing is required, Ace-Flex is inert, odorless, non-toxic, and ages well. It is highly resistant to most inorganic acids and alkalis, and is resistant to many organic chemicals.

Suggested uses for Ace-Flex include: chemical and medical laboratory tubing, surgical tubing, piping systems for liquid food products, beer, distilled products, etc., electrical insulation, conduit, grommets, battery tubing; tubing for coolant systems, lubricating systems,

refrigerator drains, etc.; hose for insect sprayers, paint sprayers, air lines, syrup lines; and instrument tubes, atomizer tubes, gasketing, etc.

Ace-Flex is kink-resistant and easy to assemble. With a rubbery, elastic quality, it can be connected to glass, metal or plastic fittings simply by dipping in soapy water and slipping over the fitting. Couplings for the tubing can easily be made by slipping the tubing into short pieces of Ace-Flex having an inside diameter the same as the outside diameter of the tubing to be joined. Ketone type cement may be used to weld permanent joints. Hose clamps may also be used, though they usually are not necessary. Standard sizes are available with inside diameters ranging from 0.120 inch to 1 inch.

U. S. Elastic Naugahyde

A new vinyl outerwear material that is waterproof, strong and remains pliable and comfortable at low temperatures has been announced by the U. S. Rubber Co. It is a light weight, cast vinyl coated material with a strong knitted fabric backing, specially designed for outer garments, and will be known as "U. S. Elastic Naugahyde" for outerwear. It is said to drape easily and have a soft, chamois-like feel. It can be stack cut and seams can be sewn. U. S. Elastic Naugahyde for outerwear, according to the company, can be easily cleaned with soap and water. It is highly resistant to abrasion, scuffing and tearing, as well as to oils, greases and most dirt stains. U. S. Elastic Naugahyde for outerwear will be produced in 12 colors—cordovan, turf tan, russet, cream, winter white, glacier blue, dark blue, red, forest green, fawn, pink and grey. It will be sold directly to manufacturers in 30 yard rolls, 52 inches wide. Production is in the rubber company's Stoughton, Wisc., plant.

• CRUDE RUBBER
• LIQUID LATEX
• CHEMICALS

E. P. LAMBERT CO.

FIRST NATIONAL TOWER
AKRON 8, OHIO
HEmlock 4-2188
MEMBER — COMMODITY EXCHANGE, Inc.

Coumarone Resins — Reclaiming Oils — Plasticizers
Powdered Rubber

THARCO

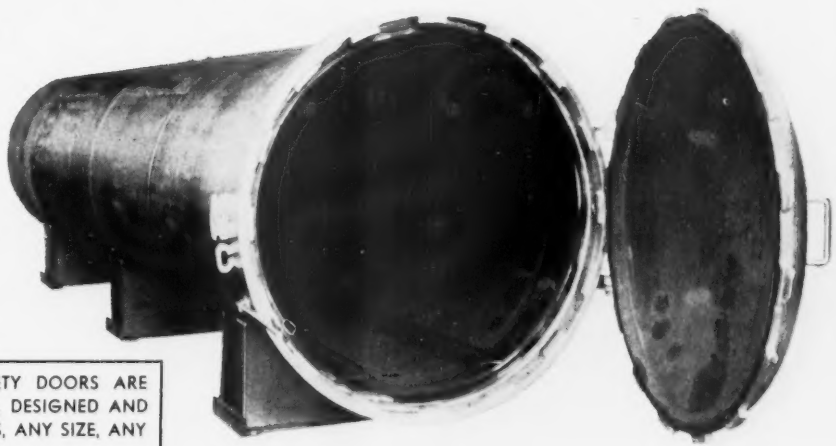
The ONLY Quick Opening Safety Door that can use a TEFLON or HYCAR Gasket

Door opens in 4 seconds and closes in 2 seconds

Does not rotate against the gasket

•

MORE THAN
2300
Now in Use



PATENTED THARCO SAFETY DOORS ARE A.S.M.E. CODE APPROVED, DESIGNED AND BUILT FOR YOUR PROCESS, ANY SIZE, ANY WORKING PRESSURE.
U. S. Pat. #2,601,936—Can. Pat. #496,738

TEDD HARRIS CO., INC.

Leader Bldg.
Cleveland 14, Ohio

Phone: Main 1-1902

Main Office:
27 Fredericka Street
NORTH TONAWANDA, N. Y.
Phone: Jackson 5367

Rubber

- CRUDE RUBBER—member Rubber Trade Association of New York handling all types of Rubber.
- FACTORY SCRAP—Bought & Sold—uncured compounds, scorched stocks, friction scrap, everything.
- HARD RUBBER DUST—all qualities to your specifications.
- SCRAP RUBBER—All Types—sorted, packed and shipped with rigid observance to prevailing specifications.

Plastics

- **NEED POLYETHYLENE PELLETS? NEED POLYSTYRENE PELLETS? Call us for them. Reprocessed to your requirements in our own plant.**
- **We will buy or sell your Polyethylene, Polystyrene, Vinyl, and Acetate scrap or surplus.**
- **Write for information sheet "How to identify types and grades of plastic scrap".**

BEST IN VALUE AND SERVICE

George Woloch co., inc.

82 Beaver Street
New York 5, N.Y.
Phone: HAnover 2-1171

Cable Address: GEOWOLOCH, N.Y.

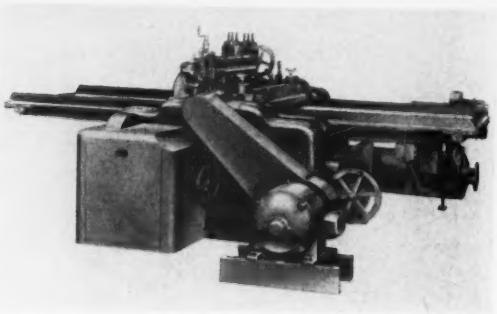
AKRON, Ohio—1082 Norita St.
Phone: SWandale 4-5237

LONDON, England—50 Gamage Bldg.
Phone Chancery 5038

NEW EQUIPMENT

Micro-Surfacer for Precision Sizing

A new machine for the precision surfacing or planing of molded rubber and plastic products to required thickness, including rubber flooring and shoe soling, is currently being marketed by the Buss Machine Works of Holland, Mich. Known as the Micro-Surfacer, the machine is said to offer a means of sizing that is far superior to methods now in use in that thicknesses are easily and uniformly held to .001-inch tolerance. In



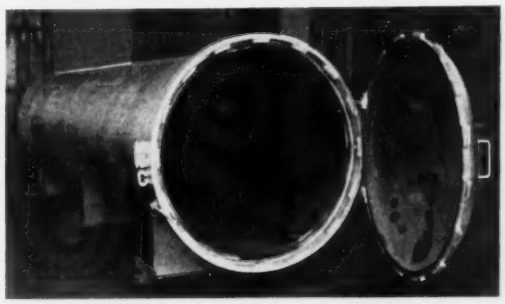
flooring, where lack of uniformity has been the source of considerable difficulty, this factor should be of marked interest. In the production of shoe soling and other products of similar character, one of the major advantages claimed is that sand and grit from the sanding to size method, which otherwise lodge in the material, are completely eliminated. This provides a much better gluing surface and thus voids a source of considerable trouble.

In operation the Micro-Surfacer's conveyors feed stock to the four feed rolls, of which the upper two are rubber and the lower two are steel chrome-plated. Molded sheets are thus brought under a high-speed rotating cutterhead having carboloy knives. Thin stock is held firmly during the cutting operation by a patented work platen. Variable feed is provided and the machine will take sheets up to 50 inches wide. The machine is said to be very flexible in operation and a large volume producer. Down-time is negligible since the carboloy knives will surface 15,000 sheets between grindings, which is accomplished by means of a built-in grinding unit. Hard chrome wearing surfaces and other details of construction, according to the manufacturer, assure many years of precision accuracy under continuous operation.

An extremely low cost **book binding kit,** which can be used for the plastic binding of presentations, reports, inventory sheets and numerous other office and factory applications, has been put on the market by Tauber Plastics, Inc., 200 Hudson St., New York 13, N. Y. Available in three-punch and four-punch models, the unit punches approximately 15 sheets at a time, depending on thickness, and a quantity of tubes is supplied with each kit. Assembly is said to be quick and easy.

Tharco Quick-Opening Safety Doors

Tharco Quick-Opening Safety Doors, produced by the Tedd Harris Co., Inc., of North Tonawanda, N. Y., have long been familiar sights in rubber factories. These doors, which are patented and A.S.M.E. code-approved, open in 4 seconds and close in 2 seconds. The latest models of these doors utilize Teflon gaskets, an impor-



tant factor where rubber autoclaves are concerned, since the cost of gasket replacement has always been considerable, especially where extremely high temperatures are involved.

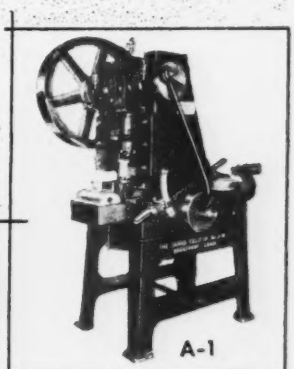
According to the manufacturers, the Tharco Quick-Opening Safety Door is the only door of its type that can utilize Teflon gaskets due to the fact that it seals without any internal pressure. By the same token, a full vacuum can be pulled on the same vessel. Because of the fact that the Tharco door does not rotate against the gasket, the wearing life of the Teflon gasket used is considerably longer than other types of gaskets, and it will withstand temperatures as high as 550°F. When used with a Teflon gasket, the Tharco door is locked and unlocked either with air or hydraulic cylinders or it can be operated with automatic push button control using hydraulic cylinders both ways.

High Mileage!

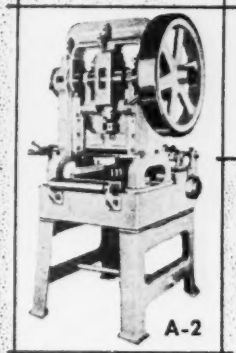
SEE PAGE 170

COULTER

THE KEY TO HIGHER QUALITY CUTTINGS



A-1



A-2

MODEL A-1

Cutting Heels at high speed production or short runs.

MODEL A-2

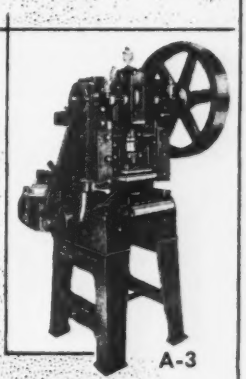
Cutting Multiple Heels, Half and Full Soles with stock grain.

MODEL A-2s

(Not illustrated)
Cutting across grain of stock.

MODEL A-3

Cutting Multiple Heels and Taps with or across stock grain.



A-3

Since 1896

coulter production machines HAVE MEANT MORE IN HIGHER QUALITY CUTTINGS . . . MORE IN GREATER PRODUCTION.

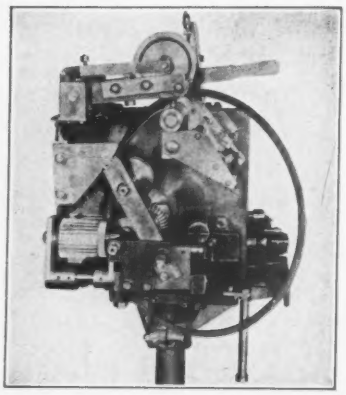
the James COULTER Machine Co. BRIDGEPORT, CONN.

BRIDGEPORT · CONNECTICUT

Utility Crimper Type Flipper

for

Truck and Large Balloon Tires



UTILITY MANUFACTURING COMPANY

Cudahy, Wisconsin

Cable Address: UTILITY-MILWAUKEE

Long Distance Phone Call

MILWAUKEE—SHERIDAN 4-7020

Just found out About...

Rubber-Flo

MOLD LUBRICANT

There are many reasons why so many prominent rubber manufacturers continue to use RUBBER-FLO year after year. Primarily it's because RUBBER-FLO is low in cost, odorless, non-toxic, uniform in quality and keeps molds clean for so long. Test RUBBER-FLO yourself and see!

Also...

RUBBER-FREE . . . A rubber surface lubricant which prevents uncured slabs from sticking . . . eliminates talc or mica.

RUBBER-SOL . . . Cleans rubber and latex deposits from screens, pipe lines, etc. Also cleans aluminum molds.

DISSOLVA-SOL . . . A highly effective metal cleaner that is low in price. Emulsifies with water.

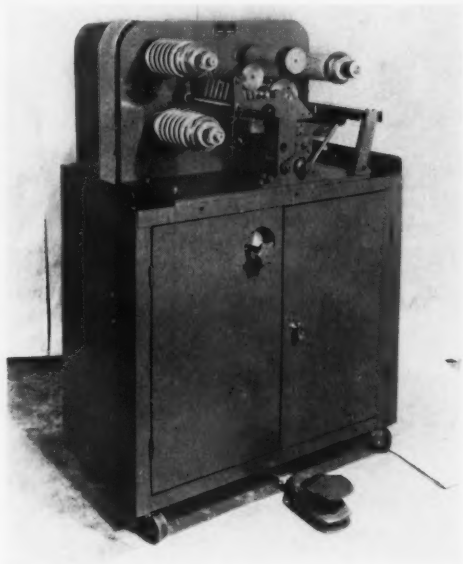
For Complete Information and FREE SAMPLES, Write . . .

PREVENTIVE MAINTENANCE COMPANY

505 Bostwick Avenue Bridgeport 5, Connecticut

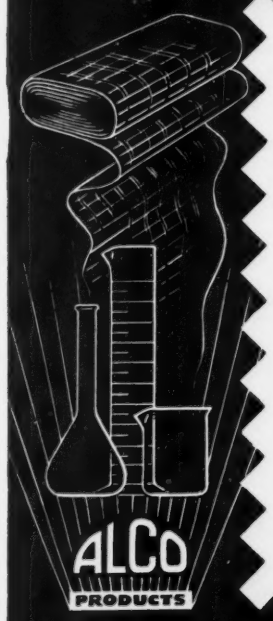
New Dusenbery Slitter-Rewinder

Designed to do a professional slitting and rewinding job on short runs and special orders, the Model 618 AB Bench Slitter and Rewinder produced by John Dusenbery Co., Inc., 271 Grove Ave., Verona, N. J., is especially designed for pressure-sensitive tapes. With a maximum speed of 180 fpm, the unit has a 7-inch maximum rewind diameter and a 10-inch maximum supply roll diameter. Maximum width of cut is 6 inches, while



minimum width is ¼-inch. The supply roll is mounted on a 3-inch diameter mandrel. A 3-inch first pull roll is driven and the surface is knurled for easy release of the sticky side of the tape. The 4-inch diameter hardened slitting roll is driven faster than the first pull roll so as to maintain a smooth sheet feeding into the knives. Standard score cut levers press hardened beveledged knives against the score cut roll with adjustable spring pressure. This slits the tapes in the correct width leaving dry edges and smooth sides.

The width of the cut can be adjusted from ¼ to 6 inches by increments of 1/64ths of an inch by means of plate spacers. The last pull roll, also 3 inches, is driven faster than the hardened score cut roll to maintain a smooth, even tension on the tape after it is slit. One fixed idler and one removable idler are supplied to smooth out and remove any weave that may be caused by the pull-off tension required to strip the slit tapes from the last pull roll. The machine is driven by a ¾ hp single phase 110/220 volt motor. This motor has a variable speed of 3 to 1 under load with smooth starting characteristics. The drive from the motor to the rolls and mandrels is through roller chain and gears. All gears and chain are completely protected by metal guards. The slitter is mounted on a heavy sheet steel cabinet with adequate storage space for levers, knives, spacers and tools. The cabinet is mounted on wheels for moving the bench slitter to any desired location.



VULCANOL*

The VULCANOLS REPRESENT a group of durable textile finishes which, when coated on textile fabrics, provide fiber conservation, pile anchorage, non-skid properties, slip resistance, and resistance to raveling or fraying.

•

Distributors for Firestone Liberian Latex

•

Our Sales and Technical Staffs Are at Your Disposal

* Registered Trademark

ALCO OIL & CHEMICAL CORPORATION

TRENTON AVE. and WILLIAM ST., PHILADELPHIA 34, PA.

NEW ENGLAND OFFICE
Alco Oil & Chemical Corp.
610 Industrial Trust Bldg.
111 Westminister St.
Providence 3, R. I.
Phone: ELmhurst 1-4559

For Real Versatility . . . KOPPERS RESORCINOL

To show you the wide variety of important uses to which Resorcinol is admirably fitted, Koppers has prepared an interesting illustrated booklet. To obtain your copy, just fill out and return the coupon.

• Koppers Resorcinol is a water soluble, crystalline, dihydric phenol. Possessed of very high reactivity, it undergoes most of the typical reactions of phenols including nitration, alkylation, condensation, etherification, and oxidation.

Resorcinol is used extensively in the preparation of room-temperature-setting resorcinol formaldehyde resin adhesives for the bonding of reinforcing fibers to synthetic and natural rubber. Industrial belting, hose, and tires are among the many products made stronger by resorcinol-based resin adhesives. These adhesives have found wide application also in wood bonding where waterproofing and permanence are mandatory. In addition, Koppers Resorcinol is used in the production of dyestuffs, pharmaceuticals, textile and leather chemicals, explosives, and plasticizers.

Koppers Company, Inc., RA-113
Pittsburgh 19, Pa.
Please send me your Resorcinol Booklet.
Name.....
Company.....
Address.....
City.....State.....

KOPPERS®

Koppers Chemicals

KOPPERS COMPANY, INC.
Chemical Division, Dept. RA-113, Pittsburgh 19, Pennsylvania

"Stanley Rubber Cutters have given us greater speed and convenience in cutting out special foam latex shapes for upholstery. On slab and mattress stock, this tool cuts smoothly, cleanly. It's fast, even on intricate shapes. And, it's light (4 lbs.) . . . can be used easily by girls and carried from one location to another."

That is the experience at the Fall River (Mass.) plant of the Firestone Tire and Rubber Co. where fifteen Stanley Rubber Cutters are at work. You can save time and material with this handy tool in cutting sponge or foam rubber up to 6" in thickness. It follows any line or templet with hairline precision at speeds up to 30 ft. per minute.

Ask your tool supplier about Stanley Rubber Cutters or write for detailed literature to: Stanley Electric Tools, 426 Myrtle Street, New Britain, Connecticut.

On the job from East to West . . . Made by men who make tools BEST

STANLEY
Reg. U.S. Pat. Off.

HARDWARE • TOOLS • ELECTRIC TOOLS • STEEL STRAPPING • STEEL

DEPENDABLE PERFORMANCE YOU CAN RELY ON

now!

100% FLOWABLE SYNTHETIC RUBBER, AS WELL AS DEPOLYMERIZED NATURAL RUBBER

100% RUBBER SOLIDS IN LIQUID FORM

TRADE MARK

DPR®

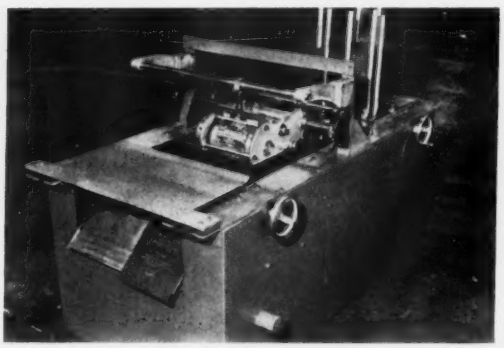
TECHNICAL LABORATORY INFORMATION AND SAMPLES UPON YOUR REQUEST

ORIGINATORS OF QUALITY DEPOLYMERIZED RUBBERS "SINCE 1906"

DPR, INCORPORATED
A Subsidiary of H. V. HARDMAN CO.
571 CORTLANDT STREET
BELLEVILLE 9, N. J.

Markocoder Imprinting Machine

Printing trademarks and identification copy on floor tiles and similar flat, rigid and relatively thick objects is now being accomplished with a modified version of the Markocoder "3M" imprinting machine made by Adolph Gottscho, Inc., Hillside 5, N. J. Material to be printed is stacked in the machine's magazine which



automatically feeds one piece at a time to the printing section. The printed piece is then discharged to a tote box or conveyor. Copy changes are made quickly and easily by use of interchangeable die wheels. The Markocoder "3M" operates at speeds up to 60 units per minute and is adjustable to handle objects ranging from 2 by 2 inches to 9 by 9 inches and from 1/16-inch to ¼-inch thick. Printing quality obtainable with the machine is reported to be sharp, clean and uniform. Fast-drying inks of almost any color may be used.

Cumberland Stair-Step Dicing Machine

A revolutionary new dicer, which employs a unique cutting method for dicing all kinds of plastic sheet stock into perfect cube sizes, has been introduced by the Cumberland Engineering Co., Providence, R. I. Called the Stair-Step Dicing Machine, it is said to be ideal for original product manufacturers and others who reclaim plastic materials. The unit is reported to make possible, for the first time, the dicing of all kinds of plastic materials, such as polyethylene, soft vinyls, nylon, acetate and styrene, on the same machine. Input speeds range from 10 to 125 feet, depending on material and size of cube desired. Perfect cubes may be produced from sheet stock in a wide range of sizes from ⅛-inch to ⅜-inch by merely changing knives. Two models are currently available capable of handling sheets up to 7 inches or 14 inches wide, respectively. Special units for handling greater widths can be made to order.

The addition of a new **explosion chamber** to its line of environmental test equipment has been announced by Tenney Engineering, Inc., Newark 5, N. J. The new chamber may be used to determine the effect of explosions on materials, components, sub-assemblies or completed units or to determine whether equipment will cause explosions when operated in an explosive atmosphere.

THE SMACO GASKET SPLICER

SPLICER
VULCANIZER
EMBOSSER
MOLDER

Features

- SPEED
- NO BREAKDOWNS
- HEAT CONTROLS IN BOTH BRONZE PLATENS
- ONE OPERATOR — FROM 1 TO 8 UNITS
- LONG LIFE HEATERS AND THERMOSTATS

Ask ABOUT OUR HAND RUBBER CUTTER

For Further Information . . . . Write to
SIVON MANUFACTURING CO.
PAINESVILLE, OHIO

THOMASTON Fabrics

A DEPENDABLE SOURCE OF SUPPLY FOR
INDUSTRIAL TEXTILES
FOR THE
RUBBER INDUSTRY

SUCH AS:
TIRE FABRICS • HOSE AND BELT DUCKS • YARNS
CHAFERS • THREADS • SHEETINGS • LAMINATING FABRICS
DIVERSIFIED COTTON FABRICS. Whatever your needs our Industrial Textile Specialists will be glad to discuss them with you. We solicit your inquiries.

THOMASTON MILLS
Thomaston, Georgia • New York Office: 40 Worth St.
Akron, Ohio Office: 308 Akron Savings & Loan Bldg.

Factice
THE STAMFORD RUBBER SUPPLY CO.
Vulcanized Oil

THE SEAL OF DEPENDABILITY

Our products are engineered to fill every need in natural and synthetic rubber compounding wherever the use of vulcanized oil is indicated.

We point with pride not only to a complete line of solid Brown, White, "Neophax" and "Amberex" grades, but also to our hydrocarbon solutions of "Factice" for use in their appropriate compounds.

Continuing research and development in our laboratory and rigid production control has made us the leader in this field.

The services of our laboratory are at your disposal in solving your compounding problems.

Oldest and Largest Manufacturers of "Factice" Brand Vulcanized Oil Since 1900

(Reg. U.S. Pat. Off.)

THE STAMFORD RUBBER SUPPLY COMPANY
Stamford, Conn.

AMES

...the preferred Dial Indicators

One of America's largest and most famous mass-producers recently chose Ames as preferred source of supply for indicator gauges. They did because the four sizes of Ames "Hundred Series" indicators fit every measuring requirement; they are *accurate, sensitive,* low in friction, yet are *rugged* and *tough* —give *more* on-the-job time. All Ames products embody latest design and highest-quality materials; they are manufactured by methods and machines that are *exclusive* with B. C. Ames Co.

Ames Small Hole Gauge No. 36

Ames Amplifying Dial Comparator No. 26

Ames Dial Micrometer No. 517

Ames Dial Depth Gauge No. 11C

Send today for your free copy of Catalog No. 58

Representatives in principal cities. B. C. AMES CO. *38 Ames Street Waltham 54, Mass.*

Mfgr. of Micrometer Dial Gauges • Micrometer Dial Indicators

MAGNESIA

for use with natural and synthetic

RUBBER

for all compounding purposes

Genmag Technical—
with neoprene, for scorch resistance.

Extra Light Calcined Magnesia—
for excellent scorch resistance and high tensile, fast cures.

Light Calcined Magnesia No. 101—
low in price; high in effectiveness.

Heavy Calcined Magnesia—
low manganese types in a variety of finenesses.

Magnesia Carbonate—
light, fine and pure.

SPECIALISTS IN MAGNESIA
MANUFACTURERS · IMPORTERS · DISTRIBUTORS

Send for samples and quotations

General Magnesite & Magnesia Company

200 Gravers Road Plymouth Meeting, Pa.

REVIEWS

BOOKS

Reports to Top Management for Effective Planning and Control. Published by the American Management Association, 330 West 42nd St., New York 36, N. Y. 6 x 9 in. 118 pp. $2.50 (members); $3.50 (non-members).

The unprecedented growth of industrial activity since World War II has spotlighted the importance of rapid, thorough dissemination, within organizations, of information regarding the company's operations, financial status, and competitive position. Leading firms have been engaged in developing report systems which will facilitate the planning function and provide close, accurate control at all levels. At a special methods review conference held by the American Management Association in New York City on May 4, 1953, five such companies described their individual programs with special emphasis, in each case, on a particular phase of the reporting program. This volume contains the five company reports, complete with tabular and other material of interest.

•

Symposium on Plastics Testing—Present and Future. (Special Technical Publication No. 132). Published by the American Society for Testing Materials, 1916 Race St., Philadelphia 3, Penna. 6 x 9 in. 76 pp. $2.00.

Papers which were presented at the symposium on "Plastics Testing—Present and Future" in June, 1952, at the meeting of ASTM Committee D-20 on Plastics are here assembled in this publication. A wide range of topics are covered, as is indicated by the paper titles: "The Measurement and Significance of the Mechanical Strength Properties of Plastics"; Measurement of the Effect of Temperature on Some Physical Properties of Plastics"; Measurement of Color, Gloss and Haze"; "The Effects of Molding Conditions Upon the Permanence of Plastics", and "Residual Stresses in Phenolic Plastics." The papers are complete with references and bibliographies. In addition, the discussions which followed the presentation of the papers also appear.

•

The Economics of the Guaranteed Wage. Economic Research Department, Chamber of Commerce of the United States, Washington 6, D. C. 6 x 9 in. 36 pp. 50c.

This comprehensive study of the guaranteed wage problem reaches the conclusion that "substantial progress" has been made in ironing out seasonal and other short-run unemployment, and that the guaranteed wage plan, which a few companies have had in effect for many years, is still not winning wide acceptance. Taking up the argument that the guaranteed wage plan would help prevent a depression, the report points out that other factors besides purchasing power influence economic conditions, among them being scientific inventions, birth of new industries, war and its aftermath, taxes and price changes. The report urges management to be aggressive in shifting and adapting policies to provide continuity of employment and wage income.

•

Marasperses: Low Cost, Highly Effective Dispersants. (Bulletin No. 120). Chemical Division, Marathon Corp., Rothschild, Wisc. 8½ x 11 in. 12 pp.

This bulletin describes the functions and uses of a group of anionic dispersants produced by the company, the "Marasperses". As explained in the bulletin, the Marasperses can be used in three ways: (1) To prevent or retard the settling of finely divided solids in water suspensions; (2) To decrease the viscosity of a system while maintaining the same solids content; (3) To permit increased concentration of solids in suspension without a consequent rise in viscosity. Each of these points is elaborated upon in this two-color, illustrated booklet.

BOOKLETS, CATALOGS, etc.

Ketones. (F-4767). Carbide and Carbon Chemicals Co., 30 East 42nd St., New York 17, N. Y. 8½ x 11 in. 48 pp.

This book discusses in detail the fourteen ketones that are sold in commercial quantities by the company—their uses in many industries, physical properties, specifications, shipping data, and constant boiling mixtures. The sections on physical properties and specifications will be helpful to the user of these products in determining proper handling and storage procedures. A bibliography is included that gives the important references in chemical literature to these ketones. The book also lists four ketones that are available in research quantities and gives their suggested uses. These are recent products of Carbide's research laboratories. An important feature of this new book is an entire section devoted to the specification test methods used by Carbide for its ketones. These laboratory control tests comprise some of the standard ASTM methods as well as new methods that have been specially developed by the company's own laboratories. The user will therefore be able to use the book as a complete guide in his analytical laboratory when working with these ketones.

•

Self-Aligning Barco Swivel Joints for Piping. (Catalog No. 265-A). Barco Manufacturing Co., 501 Hough St., Barrington, Ill. 8½ x 11 in. 12 pp.

The complete line of Barco self-aligning swivel joints is described and illustrated in this catalog. Complete specifications, dimensions and application data for the entire line are presented. To meet the needs of industry for this type of fitting, Barco manufactures 14 styles of the joint and eight different sizes, from ¼ to 2 inches, and offers a choice of four different service specifications for handling temperatures from —500 to 600° F., pressures from vacuum to as high as 600 psi steam, or 3,000 psi hydraulic. All of these types are shown in this catalog.

•

Banbury Mixer Drives. (GEA-5888). General Electric Co., Schenectady 5, N. Y. 8½ x 11 in. 4 pp.

This well-illustrated publication uses installation and cutaway views of the G-E air-water cooled Banbury motor to show how it is designed for easy installation, minimum maintenance, and long life. Benefits of G-E packaged rubber-mill control are explained and pictured.

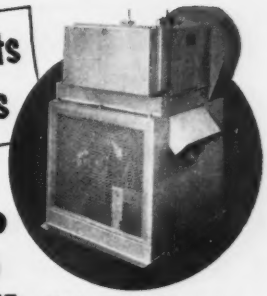
High Mileage!

SEE PAGE 170

Dice Rubber Sheets into Small Cubes

WITH THE

CUMBERLAND ROTARY CHOPPING and DICING MACHINE



Widely used in the manufacture of RUBBER CEMENT, RUBBER COATINGS and MANY OTHER PRODUCTS.

As a chopper, this machine efficiently cuts rubber and rubber-compound slabs into small pieces — frequently used for *faster* dissolving. Two sizes available to handle stock widths up to 14" and 24". Also useful to salvage V-belts by reducing them to half-inch or shorter lengths.

In modified form as a dicer, this machine dices sheet stock into cubes of various sizes at input speed of 10 ft. to 125 ft. per min. Features the simplest, least expensive method of dicing yet devised!

WRITE FOR COMPLETE INFORMATION!

FOR GRANULATING PLASTIC . . . Investigate Cumberland's complete line of granulating machines. Request Bulletin 251.

CUMBERLAND *Engineering Co. Inc.*

DEPT. 3 · BOX 216 · PROVIDENCE · RHODE ISLAND

Builders of Better Machines for the Rubber and Plastics Industry.

It's Progressive . . .

FOR FINER
CUTTING DIES of all kinds
MALLET DIES
CLICKER DIES
PERFORATING DIES
I. D. and O. D. DIES
PUNCH PRESS
TRIMMING DIES
PUNCH PRESS
PINCHING DIES
RENCO CUTTING PADS and BLOCKS

Also Manufacturers of

Precision Automatic Screw Machine Products, Inserts, etc.

Makers of Western RMH Cutting Dies.

PROGRESSIVE SERVICE COMPANY

Main Office and Factory
2747 Locust St.
ST. LOUIS, MO.
Tel.: NEWSTEAD 4300

Branch Office and Factory
82 S. Cameron St.
HARRISBURG, PA.
Tel.: 2-8146

NCP

The National Chemical and Plastics Co.

Manufacturers of quality lacquer products for industry, equipped to fill your lacquer needs quickly and economically.

Rubber Lacquers

CLEAR AND COLORED

- NEW, improved LACQUERS for Rubber Footwear, or any rubber product where lacquer is used as a pre-cure coating.
- SOLE and HEEL LACQUERS. Eliminate seconds by using our special pigmented lacquers. Can be supplied in any color desired.
- NCP 1909. An anti-tack coating. Spray or brush it on any tacky surface where powder is normally used to kill tack before cure.
- CASUALS, footwear. NCP 1909 is an excellent dulling and anti-tack agent on edges of soles or crepe wrappers used in the manufacturing of casual type footwear.
- SPECIAL lacquers for all types of rubber products.

Write for complete details

The National Chemical and Plastics Co.

Dept. RA • 1424 Philpot St. • Baltimore 31, Md.

RANDALL & STICKNEY

Hand Grip Rubber Gauge No. 3-B

Height .....9"	Length .....9¾"	Range .....½"
Depth of Throat ....6½"	Dia. 50 Divisions Each Div. 1/1000"	Weight ....4 lbs. Frame Aluminum

Designed for gauging stock as it is coming from the calender.

FRANK E. RANDALL CO., Inc., Waltham 54, Mass.

BOOKLETS, CATALOGS, etc.

Diamond Precipitated Calcium Carbonates for the Rubber Industry. Diamond Alkali Co., 300 Union Commerce Building, Cleveland 14, Ohio. 8½ x 11 in. 36 pp.

A factual, ready-reference manual prepared primarily for technical personnel interested in the application of precipitated calcium carbonates in rubber manufacture, this booklet presents typical chemical analyses and physical properties of six standard grades of these Diamond-developed coated and ultra-fine fillers and summarizes their special features and application advantages. An extensive series of tabular charts and bar graphs provide physical properties data on evaluated stocks utilizing these quality-controlled compounds. Basic recipe, maximum tensile strength (300 to 500% modulus), maximum tear resistance, and percentage of elongation are given for each material at six different loadings ranging from 25 through 150 parts pigment at a press cure of 287°F. Supplemental information includes formulae illustrating the versatility and value of Diamond Precipitated Calcium Carbonates used in representative stocks for six typical applications, and a descriptive outline of four related Diamond chemicals for plasticization, flame retardance, reclamation, and blowing of sponge rubber.

•

Chemicals for Industry and Agriculture. Consolidated Chemical Industries, Inc., 630 Fifth Avenue, New York 17, N. Y. 8½ x 11 in. 104 pp.

This new catalog has been published in celebration of the company's 75th anniversary in the industrial chemical field. Containing a full account of the firm's history, growth, and numerous products, the catalog is complete with photographs of its eleven plants in the United States and Argentina, product descriptions, specifications, technical data (including useful tables, graphs, and general information), and packaging and shipping information. Consolidated manufactures various types and grades of acids, alums, sulfates, animal products, and fertilizers. In the recovery of spent sulfuric acids the company is a pioneer and has the largest acid sludge burning unit ever built with another under construction in the southwest.

•

Scientific Research and Development in American Industry. (Bulletin No. 1148). Bureau of Labor Statistics, U. S. Department of Labor, Washington 25, D. C. 8 x 10¼ in. 106 pp. 50c.

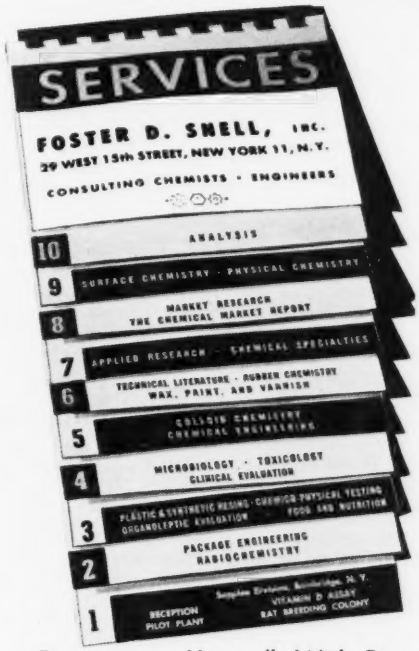
This report, compiled in cooperation with the U. S. Department of Defense, is a comprehensive and detailed coverage of the nation's industrial research resources. Discussed in the report are such topics as the rate of turnover of professional research staffs and the past and potential effects of military calls of such employees; research engineers and scientists as a percent of total company employment; research costs as a percent of sales; both employment and costs on government prime contracts and subcontracts for defense research, and the extent of increase in government-financed and company-sponsored research between January, 1951, and January, 1952. In all sections of the report, separate figures are given for major manufacturing and non-manufacturing industries and for companies of different size.

•

How to Get Extra Service Out of Solid Industrial Tires. Rubber Manufacturers Association, 444 Madison Ave., New York 22, N. Y. 8½ x 11 in. 8 pp.

This profusely illustrated booklet is intended to acquaint users with the more common reasons for failures of solid industrial tires and to suggest preventive measures to help them get maximum service from such tires. The pamphlet describes the various types of solid industrial tires, and gives sixteen rules for longer industrial tire life. It is pointed out that tire abuses lead to tire failure, and this point is well discussed and illustrated. Also included are eight rules for mounting industrial tires of the "pressed-on" type.

Send For YOUR FREE COPY



Depicting an Unusually Wide Range of *Research Facilities and Services*

Sure Protection!

Protect the fine reputation of your products by using only the best raw materials when manufacturing.

For more than 30 years we have been a dependable source of supply of first-quality raw materials for leading rubber compounders and reclaimers. Among our products are:

Rosins	Rosin Oils	Solvents
Pine Tars	Pine Tar Oils	Pine Oil
Burgundy Pitch	Tackifiers	Dipentene

We would like the privilege of discussing with you products of this nature, including specially processed compounding and reclaiming oils tailor-made to solve your individual problem.

E. W. COLLEDGE

G. S. A., Inc., P. O. Box 389, Jacksonville 1, Fla.

52 Vanderbilt Avenue
New York 17, N. Y.

25 E. Jackson Blvd.
Chicago 4, Ill.

2775 Moreland Blvd. at
Shaker Square
Cleveland 20, Ohio

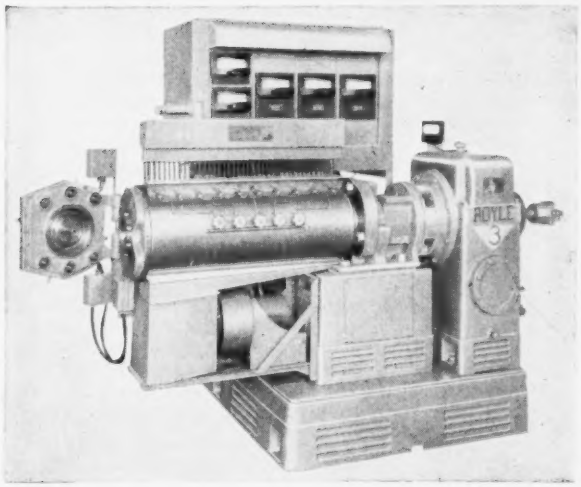
503 Market Street
San Francisco 5, Calif.

Exclusive Sales Agents for

THE GLIDDEN COMPANY

Naval Stores Division & American Turpentine & Tar Co.

FASTEST HEATING FASTEST COOLING



Here are some of the time-tested, money-saving reasons more and more plants are standardizing with Royle Spirod* Extruders for processes requiring maximum flexibility in controlled temperatures — constantly maintained and accurately zoned:

- **Extra heavy walled cast steel cylinders that will not warp. No joints to leak when pressures are high or crevices to collect burned compound that would cause contamination.**
- **Heavy duty large diameter heating elements, that can be used with 440 volts without step-down transformers, provide radiant heat to cylinders and heads.**
- **Any heating element may be removed and replaced without disturbing other elements or wiring.**
- **A cooling system with ten times the capacity of conventional designs can be modulated through its entire temperature range without drastic changes. Ample cooling for all compounds at maximum speeds.**

No. 3 Royle Spirod Extruder. Completely insulated and equipped for evaporative cooling.

*Patent Applied For

JOHN ROYLE & SONS

ROYLE PATERSON N. J. 1880

PIONEERED THE CONTINUOUS EXTRUSION PROCESS IN

London, England
James Day (Machinery) Ltd.
REgent 2430

Home Office
V. M. Hovey J. W. VanRiper
SHerwood 2-8262

Akron, Ohio
J. C. Clinefelter
SWandale 4-5020

Los Angeles, Cal.
H. M. Royal, Inc.
LOgan 3261

PATERSON 3, NEW JERSEY

DO YOU

HAVE A REQUIREMENT FOR LOW TEMPERATURE FLEXIBILITY IN ACRYLONITRILE OR CHLOROPRENE TYPES OF SYNTHETIC RUBBERS?

IF SO—

We Recommend Our . . .

OHOPEX® R9

BUTYL OLEATE

and

KP-140 (TBEP)

PLASTICIZERS

Write for Complete Information TODAY!

OHIO APEX *for* PLASTICIZERS ★ ACHEMICALS

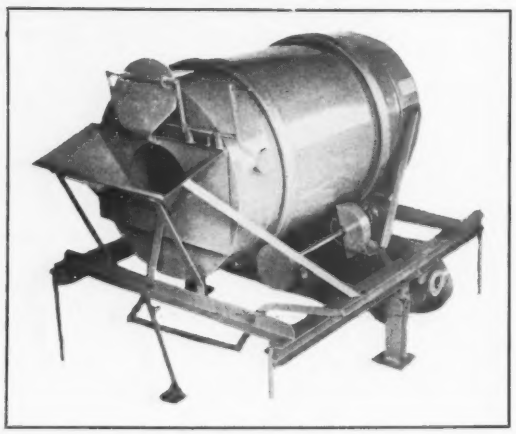
OHIO-APEX DIVISION

FOOD MACHINERY AND CHEMICAL CORPORATION

NITRO, WEST VIRGINIA

WILLS "SUB-ZERO" ROTARY TUMBLERS

THE INDUSTRY STANDARD



LIQUID CO_2

DEFLASHING RESULTS PROVE STARTLING. MODELS NOW AVAILABLE TO USE EITHER SOLID OR LIQUID CARBON DIOXIDE.

FERRY MACHINE COMPANY

WILLS RUBBER TRIMMING DIVISION

KENT, OHIO, U. S. A.

(Export Sales Through Binney & Smith, International)

REVIEWS (CONT'D)

Rubber Insulated High Voltage Power Cable: Up to 35,000 Volts. Okonite Co., Passaic, N. J. 8½ x 11 in. 128 pp.

In view of the tremendous increase in the use of high voltage cable, this new publication should be of special interest. This is the first publication dealing with rubber-insulated cables for use at voltages as high as 3500. The advantages, economies and versatility of this type cable are carefully discussed. The book contains complete technical information, including current carrying capacity tables, aluminum conductor conversion factors, formulas for calculating the effects of shielding, dimensional data on bare conductors and single conductor cable constructions, installation recommendations, methods for determining conduit size, fill and area, and methods for determining bending radii and pulling tensions. Of particular interest are 29 pages of detailed drawings and instructions for splicing and terminating high voltage rubber-insulated cables. These include straight, tee and trifurcating splices, ascending and descending terminations, in addition to terminals with and without potheads.

•

Selection and Sizing Pressure Relief Valves to Comply with ASME Boiler Code Requirements. McDonnell & Miller, Inc., 3500 North Spaulding Ave., Chicago 18, Ill. 8½ x 11 in. 24 pp.

Although the ASME code is explicit about the selection of pressure relief valves with capacity ratings to match gross heat output of the equipment, no guide procedure has been readily available for calculating or determining gross heat outputs. This booklet is intended to satisfy that need—to provide complete and easy to use data for accurately determining the output of all types of boilers, tanks and heaters. Formulas and tables cover recommended relief valves for cast-iron boilers and steel boilers, as well as those boilers for which there is no nameplate data or set procedures for establishing the output. Also covered are hot water supply heaters and tanks, heat exchangers and unfired pressure vessels.

•

Union Steam Generators and Allied Equipment. (Catalog No. G.B.-153). Union Iron Works, Erie, Penna. 8½ x 11 in. 20 pp.

This catalog covers concisely the diversified line of Union steam generators and allied equipment. Described are eight basic arrangements of two, three and four drum steam generators furnished to meet a wide range of loads, pressures and temperatures for power, process and space heating; heat recovery units, including fire tube and water tube boilers, plain tube and cast iron extended surface economizers; Union process equipment, including Dowtherm vaporizers, reaction kettles, autoclaves, heat exchangers and liquid heaters. Design drawings and photos are accompanied by brief summaries of salient features for quick reader analysis.

•

Ethyl Cellulose In Specialty Coatings. Hercules Powder Co., Wilmington, Del. 8½ x 11 in. 16 pp.

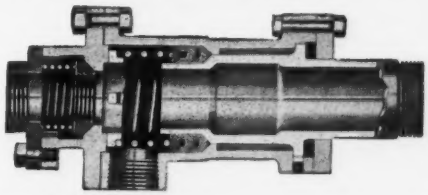
This booklet notes that the unique properties of ethyl cellulose are being utilized in coatings for widely different surfaces including plastics such as polystyrene, on rubber, metal, wood and paper. It is also being used as the base of many liquid adhesives, strippable protective coatings and gel lacquers. The booklet contains formulations for many of the applications for ethyl cellulose, as well as information about the solvents and stabilizers used in ethyl cellulose coatings.

•

Valvair Speed-King Solenoid Pilot-Operated Control Valve. (Bulletin No. SK-53). Valvair Corp., 454 Morgan Ave., Akron 11, Ohio. 8½ x 11 in. 8 pp.

This bulletin describes the new "Speed King" solenoid pilot-operated control valve produced by the company. Complete details and specifications are provided for the various models of the valve, including a 3-way foot mounted, a 3-way sub-base manifold mounted, a 4-way-5-port (2-pressure) manifold mounted, a 4-way foot mounted, and a 4-way sub-base manifold mounted type.

Talk About Service . . .



DIAMONDS *are Tops!*

"Your Swing Joints have given excellent Service." J.T.W.

"Joints working very good. We are well satisfied." J.H.B.

"Your joints are working fine. No trouble." N.S.S.

Patented construction, accurate machining and specially-made components are the features which make Diamond

REVOLVING and SWING & BALL Joints

the outstanding in the field. They are leak-proof and guaranteed to give dependable service. Thousands of users attest to their performance. Made in a wide range of sizes for use on high-pressure steam, gas, air and any fluid system where flexible connections are needed.

Write for complete details.

DIAMOND METAL PRODUCTS CO.
406 MARKET ST. ST. LOUIS 2, MO.

Exporters—
THE JAY-H CO., INC., 4408 Manchester Ave.
St. Louis 10, Mo. Cable address "JAYHCO"

NEW! CONCENTRATED

LIQUIZINC

WATER DISPERSIBLE ZINC STEARATE

- **ANTI-TACK AGENT** Absorbed by any subsequent milling or compounding operations
- **SPEEDS UP DISPERSION OF** dry compounding materials
- **STOPS MILL ROLL SLIPPAGE**
- **NO DETRIMENTAL EFFECT ON** the cure or physical properties of rubber
- **Allows Stock to Run Cooler**

Order a Trial Gallon

MAIL THIS COUPON TODAY!

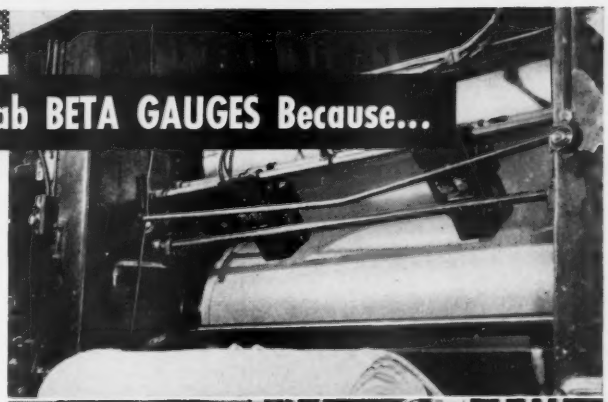
RUBBA, Inc., 1015 East 173rd St., New York 60, N. Y.

Please ship on approval 1 gallon of LIQUIZINC

Name of Firm .....
Address .....
Ordered by .....

RUBBA INC. 1015 E. 173rd ST. New York, N.Y.

HOOD RUBBER Likes Tracerlab BETA GAUGES Because...



. . . if they hadn't, they wouldn't have purchased a total of five gauges over the past several years. The upper picture shows one of their newest installations. Two Tracerlab Backscatter units are controlling the thickness of rubber as it comes through the calender prior to being applied to the fabric backing. The number of off-weight rolls has decreased by 75% since their gauges were installed, Hood reports. Since off-weight rolls averaged about 70% heavy and 30% light, there has been appreciable material saving and improved quality.

By having a gauge near each end of the calender, non-uniform material produced by "cocked" rolls has been eliminated. The lower picture shows the circular recorders mounted above the Tracerlab gauge consoles. Located 50' from the gauge heads they are adjacent to the operators. Product changes can be noted instantly and the necessary calender adjustments made.

ASK for FREE booklet *"Tracerlab Beta Gauges"*

Tracerlab
130 HIGH ST., BOSTON, MASS.

MARKETS NEWS-PRICES

NEW YORK, NOV. 16, 1953

Raw Rubber

Natural: Since our last report (October 14), the average price of spot rubber on the New York Commodity Exchange has moved in a range of 1c, high for the period being 20.88c reached on October 19, and low being 19.88c reached on October 27 and again on November 2. The average price of spot rubber for the month of October was 20.82c based on 21 trading days. This compares with an average of 23.06c in the previous month.

Trade sources report that even though the rubber markets have assumed more stability and are tending toward slightly higher prices, there is widespread evidence of uneasiness, particularly in leading buying quarters. It does not seem to be a question of values, but rather a question of whether or not the declining trend of rubber prices is over. Confidence, therefore, is still lacking.

According to advices from the Far East, rubber replanting in Malaya has come almost to a standstill because of the "uneconomic price of the commodity." It was said that most rubber companies in that country were finding it difficult to even keep up old holdings. A rubber company spokesman stated that: "Unless we have a fair margin of profit, how can we afford to replant? Generally speaking," he declared, "replanting has stopped."

In Ceylon, however, it was announced that some 20,000 acres of rubber will be replanted next year under the rubber rehabilitation program. This is in addition to the 7,500 acres due for replanting in the current year. The total acreage to be rehabilitated by the end of 1954 represents 4% of the lands under rubber cultivation on the island of Ceylon.

Synthetic: At the recent dedication of a new building at the National College of Rubber Technology in London, England, Lord Baillieu, chairman of the Dunlop Rubber Co., stated that Britain's lack of a synthetic rubber industry is a weakness in that country's economy for which an answer must be found. Lord Baillieu stated that if the rubber-producing areas of the world were to fall into hostile hands, the country would be gravely endangered. P. W. Howard, president of the Federation of British Rubber Manufacturers' Associations, stated that the development of synthetic materials is essential.

The International Rubber Study Group reports that in the first nine months of 1953, 737,215 long tons of synthetic rubber were produced in the world, while 682,500 long tons were consumed. Stocks at the end of September were set at 185,000 long tons. The Rubber Study Group stated that in December, world production was 67,500 tons, while consumption was set at 65,000 tons. For the first nine months of this year, production was some 67,000 long tons ahead of production in the same period of the previous year, while consumption was 30,000 long tons greater in the first nine months of 1953 than in the first nine months of 1952.

Price Data

Closing Rubber Prices on New York Commodity Exchange (No. 1 R.S.S. Contract)

FROM OCTOBER 15 TO NOVEMBER 16

Oct.	Spot	Dec.	Mar.	May	July	Sales
15	20.38	20.20	20.25	20.25	20.25	91
16	20.38	20.60	20.65	20.65	20.65	4
17						
18						
19	20.88	20.70	20.75	20.75	20.75	29
20	20.00	19.81	19.90	20.00	20.00	42
21	20.25	20.15	20.20	20.25	20.30	41
22	20.62	20.55	20.60	20.60	20.60	20
23	20.50	20.50	20.50	20.50	20.50	14
24						
25						
26	20.38	20.25	20.35	20.35	20.35	1
27	19.88	19.75	19.85	19.90	20.00	100
28	20.00	19.75	19.90	19.90	19.95	28
29	20.38	20.00	20.20	20.20	20.20	11
30	20.62	20.35	20.60	20.50	20.50	50
31						
Nov.						
1						
2	19.88	19.70	19.80	19.88	19.90	62
3						
4	20.25	20.10	20.19	20.16	20.20	9
5	20.50	20.45	20.55	20.55	20.55	28
6	20.50	20.50	20.50	20.60	20.60	82
7						
8						
9	20.25	20.00	20.12	20.10	20.10	19
10	20.62	20.50	20.48	20.45	20.45	18
11						
12	20.25	20.15	20.25	20.20	20.25	28
13	20.50	20.30	20.40	20.35	20.35	12
14						
15						
16	20.38	20.20	20.35	20.35	20.35	41

Outside Market

No. 1 Ribbed Smoked Sheets:	
Spot	.20⅜
November	.20⅜
December	.20⅜
Thin Latex Crepe:	
Spot	.22¼
Thin Brown Crepe, No. 2	.16⅝
Smoked Blankets	.16¼
Flat Bark Crepe	.14½

London Market

(Standard Smoked Sheets)

December	19.69 - 19.83
Jan.-Mar.	19.98 - 20.12

Singapore Market

(Standard Smoked Sheets)

December	18.45 - 18.52

Synthetic Rubber

(Dry Types—Per Pound)

Butaprene NF	.490 - .500	
Butaprene NL	.500 - .510	
Butaprene NAA	.540 - .550	
Butaprene NXM	.580 - .590	
Chemigum 30N4NS	.500 - .510	
Chemigum 50N4NS	.500 - .510	
Chemigum N3	.580 - .590	
G-E Silicone Rubber (compounded)	3.15	-4.00
G-E Silicone Gum (not compounded)	——	-4.48
GR-I	——	- .220
GR-S	——	- .230
Hycar OR-15	.580 - .590	
Hycar OR-25	.500 - .510	
Hycar OS-10	.550 - .560	
Neoprene Types AC and CG	——	- .550
Neoprene Type GN	——	- .410
Neoprene Type GN-A	——	- .410
Neoprene Type GRT	——	- .420
Neoprene Type KNR	——	- .750
Neoprene Type Q	——	-1.00
Neoprene Type S	——	- .420
Neoprene Type W	——	- .410
Neoprene Type WRT	——	- .450
Paracril B	.500 - .510	
Paracril BJ	.500 - .510	
Paracril C	.580 - .590	
Silastic (compounded)	2.35	-4.40
Thiokol Type A	——	- .470
Thiokol Type FA	——	- .640
Thiokol PR-1	——	- .950
Thiokol Type ST	——	-1.000

Middling Upland Quotations

	Oct. 14	November 16		
	Close	High	Low	Close
Dec.	32.71	32.94	32.86	32.86
Mar.	33.11	33.39	33.30	33.32
May	33.53	33.60	33.53	33.53

Liquid Latex

Natural: According to the U. S. Department of Commerce, 44,204 long tons of natural latex were imported into the United States in the first eight months of 1953. In the first eight months of the previous year, 24,472 long tons were imported. The department stated that in the first eight months of this year, 45,333 long tons of natural latex were consumed, against the 31,610 long tons consumed in the first eight months of 1952. As of September 30, 1953, there were 11,046 long tons of natural latex on hand, against the 9,108 long tons on hand on September 30, 1952.

Natural latex prices in the American market have followed the recent decline in the price of dry natural rubber. Centrifuged latex for first quarter 1954 delivery in tank cars is now quoted around 28c per pound total solids. This price brings natural latex close to the price for GR-S latices which range from 22½ to 27c per pound delivered.

Synthetic: The Department of Commerce estimates that in the first nine months of this year, 33,152 long tons of GR-S latex were produced, against the 27,851 long tons produced in the first nine months of the preceding year. In the 1953 period, 35,887 long tons were consumed, while in the 1952 period, 29,278 long tons were consumed. Stocks of GR-S latex on September 30, 1953, totaled 4,906 long tons, contrasted with the 4,032 long tons on hand on September 30, 1952.

The Department also stated that in the first nine months of 1953, 6,883 long tons of neoprene latex were produced and 6,164 long tons consumed. In the same period of 1953, 4,269 long tons of N-type latex were produced and 2,975 long tons consumed. As of September 30th of this year, there were 1,138 long tons of neoprene latex and 656 of N-type in stocks.

Cotton

The price of middling uplands on the New York Cotton Exchange has moved in the rather narrow range of .35c since our last report (October 14), high for the period being 33.75c reached on October 28 and again on October 30, and low being 33.45c reached on October 19 and November 6. The average price of middling uplands for the month of October was 33.53c based on 21 trading days. This compares with an average of 33.69c in the previous month.

The Export-Import Bank has announced a $60,000,000 loan to Japan to finance the export of United States cotton to Japan. The government bank said that at current market prices, the loan would allow Japan to buy 300,000 bales of cotton in the United States through July 31, 1954.

The International Cotton Advisory Committee recently concluded a ten-day meeting and reported that no action had been taken on a proposed international cotton agreement. The time is not appropriate, the committee said, but the committee authorized one or more competent experts to continue an objective study, without committing any government, and to prepare for consideration a draft of an agreement that may seem practicable.

The report also said that an increase of about 10% in world cotton consumption would bring about an approximate balance of consumption with present world production. The Standing Committee was called upon to explore the potentialities of increasing consumption by government and non-government action.

MARKETS
NEWS-PRICES

NEW YORK, NOV. 16, 1953

Reclaimed Rubber

The U. S. Commerce Department reports that in the first nine months of this year, 229,597 long tons of reclaimed rubber were produced, compared with the 197,691 long tons produced in the prior year. Consumption in the first nine months of 1953 was set at 221,382 long tons, against the 205,976 long tons consumed in the comparable period of 1952. At the close of the 1953 period, there were 30,238 long tons of reclaimed rubber in stocks, while at the end of the same period of 1952, there were 31,430 long tons on hand, the department reported.

Notwithstanding the fact that consumption this year is running about 30,000 tons ahead of last year, the trade reports that market activities in the past few weeks have been rather slow. It is expected that this situation will continue at least until the end of this year, at which time an upturn in business conditions is anticipated, at least in some quarters. Current prices follow:

(Prices for All Areas Except Calif.)

	per lb.
Premium Grade Whole Tire	.10½
First Line Whole Tire	.10
Second Line Whole Tire	.09½
Third Line Whole Tire	.09¼
Fourth Line Whole Tire	.08¾
Black Carcass	.14¼
No. 1 Light Colored Carcass	.20¼
No. 1 Select Peel	.11¼
No. 1 Peel	.10½
Butyl Tube Reclaim	.12½
S.P. Natural Rubber Black Tube	.16
Natural Rubber Black Tube	.15
Natural Rubber Red Tube	.24¼
Natural Rubber Gray Tube	.24¼

Tire Fabrics

According to the *Textile Organon*, bulletin of the Textile Economics Bureau, Inc., domestic shipments of high tenacity rayon yarn for tires, industrial belting and related uses dropped 6% in the third quarter below comparable deliveries in the second quarter. Average shipments in 1953, however, are running substantially ahead of previous years.

Total shipments of high tenacity rayon yarn for tires and related uses in the third quarter of 1953 totaled 111,200,000 pounds. This compares with 117,700,000 pounds for the second quarter of this year and 115,800,000 pounds for the first quarter. Shipments consequently have averaged 114,900,000 pounds per quarter so far this year compared with 100,800,000 pounds in 1952 and much lower quarterly averages for 1950 and 1951. The rate of shipments in the current quarter are also being maintained at a relatively high level, according to current reports.

(Prices f.o.b. Shipping Point)

Rayon Tire Cord

1100	lb.	.76½
1650	lb.	.73½
2200	lb.	.73

Nylon Tire Cord

210	lb.	2.00
840	lb.	2.00

Rayon Graded Fabric

1100	lb.	.72
1650	lb.	.69½
2200	lb.	.68½

Cotton Chafers

14.4 oz. (per square yard)	lb.	.71
9.25 oz. (per square yard)	lb.	.66½
11.65 oz. (per square yard)	lb.	.63
8.9 oz. (per square yard)	lb.	.68

Scrap Rubber

According to trade sources, business in the scrap rubber market during the period has been rather restricted, continuing the trend which has been in existence for the past few months. Orders for November delivery have been somewhat limited and, in some cases, have fallen below tonnages ordered for shipment in the previous month. The trade is of the opinion that there will not be any great change in market conditions before the end of the current year.

The Commerce Department reports that 561 long tons of scrap rubber were exported during July, compared with the 1,061 long tons exported in the previous month. The July shipments were valued at $54,906. Current prices for scrap rubber follow:

(Prices Delivered Akron)

Mixed tires	ton	13.50
Light colored carcass	lb.	.05
No. 1 peelings	ton	50.00
No. 2 peelings	ton	30.00
No. 3 peelings	ton	24.00
Buffings	ton	17.00
Truck and Bus S.A.G.	ton	16.00
Passenger S.A.G.	ton	15.00
Natural Rubber Red Tubes	lb.	.11¼
Natural Rubber Black Tubes	lb.	.04¾
Butyl Rubber Tubes	lb.	.02½

Rubber

Natural - Synthetic

S. J. PIKE & CO., INC.

30 CHURCH STREET, NEW YORK 7, N. Y.

CABLE ADDRESS "PIKESID, N.Y." TWX-NY 1-3214 TEL: WOrth 4-1776

In Akron:
Tanney-Costello, Inc.
868 E. Tallmadge Ave.
Blackstone 4148

In California:
Merit Western Co.
George Steinbach
717 So. Date Avenue
Alhambra, California
Cumberland 3-1400

STATISTICS *Of Interest to the Rubber Industry*

U. S. Imports and Re-Exports of Natural Rubber

	GROSS IMPORTS										RE-EXPORTS		TOTAL NET IMPORTS
	Natural Rubber (Dry)			Natural Rubber (Latex)			Guayule						
Year	Long Tons	Total Declared Value	Average Declared Value per pound Cents	Long Tons	Total Declared Value	Average Declared Value per pound Cents	Long Tons	Total Declared Value	Average Declared Value per pound Cents	Total Gross Imports Long Tons	Long Tons	Total Declared Value	Long Tons
1936	467,064	152,072,496	14.54	19,852	6,659,899	14.98	1,229	286,552	10.41	488,145	12,581	4,488,223	475,564
1937	574,600	237,307,041	18.44	23,185	10,213,670	19.67	2,691	745,873	12.37	600,476	7,948	3,386,408	592,528
1938	397,640	125,373,864	14.08	11,944	4,168,127	15.58	2,508	628,886	11.19	412,092	5,652	1,799,124	406,440
1939	469,946	167,586,780	15.92	27,437*	10,467,552	17.03	2,233	463,345	9.27	499,616	13,125	5,832,618	486,491
1940	781,202	303,308,823	17.33	33,789	14,593,466	19.28	3,633*	758,007	9.31	818,624	7,060	3,197,136	811,564
1941	989,498	401,976,317	18.14	34,797*	15,965,627	20.48	4,881	1,145,767	10.48	1,029,176	5,376	2,757,872	1,023,800
1942	266,276	112,537,426	18.87	10,646	5,630,667	23.61	5,523	1,660,792	13.42	282,445	10,856	5,913,386	271,589
1943	50,358	31,369,198	27.81	1,890	1,312,202	31.00	7,678*	3,636,789	21.14	59,926	22,583	16,446,707	37,343
1944	103,847	73,908,549	31.77	3,091	2,092,211	30.22	6,701*	3,351,233	22.33	113,639	9,739	8,712,695	103,900
1945	134,408	95,814,102	31.82	4,773	3,115,853	29.14	10,040	5,963,797	26.52	149,221	9,509	7,201,746	139,712
1946	376,502	228,796,110	27.13	8,421	5,843,085	30.98	5,344	2,859,246	23.89	390,267	7,711	5,331,954	382,556
1947	691,087	306,951,814	19.83	17,542	9,787,722	24.91	2,884	1,492,825	23.11	711,513	4,121	2,354,494	707,392
1948	702,293	290,849,177	18.49	32,745	18,288,223	24.93	302	71,330	10.53	735,340	6,672	3,259,324	728,668
1949	630,808	225,343,624	15.95	29,743	14,968,650	22.47	....	.....	....	660,551	6,253	2,746,109	654,298
1950	747,109	416,222,598	24.87	54,401	41,764,486	34.27	739	254,331	15.37	802,249	8,640	6,832,821	793,609
1951	677,874	727,343,348	47.90	54,963	80,178,309	65.12	1,619	1,258,941	34.71	734,456	2,603	3,947,740	731,853
1952	756,987	578,179,519	34.09	48,228	40,563,116	37.55	782	358,095	20.44	805,997	3,024	2,592,099	802,973
1952:													
July	45,718	30,026,066	29.32	2,295	2,378,572	33.74	412	153,855	16.66	48,425	135	128,437	48,290
Aug.	62,455	37,485,360	26.79	4,684	3,513,319	33.49	....	.....	....	67,139	373	278,927	66,766
Sept.	47,696	28,223,624	26.42	3,813	2,771,909	32.45	....	.....	....	51,509	279	202,978	51,230
Oct.	50,762	29,340,768	25.84	4,890	3,272,571	29.88	....	.....	....	55,652	337	248,642	55,315
Nov.	44,458	24,209,723	24.32	4,321	2,866,961	29.62	....	.....	....	48,779	585	414,704	48,194
Dec.	72,160	38,104,339	23.57	6,032	3,817,116	28.25	....	.....	....	78,192	615	417,656	77,577
1953:													
Jan.	57,516	31,296,490	24.29	6,250	4,168,234	29.77	....	.....	....	63,766	528	375,052	63,238
Feb.	42,562	24,336,087	25.80	6,338	4,480,115	31.55	....	.....	....	48,900	981	663,761	47,919
Mar.	50,115	28,724,364	25.59	6,671	4,733,320	31.68	....	.....	....	56,786	605	435,030	56,181
Apr.	54,272	29,729,394	24.45	6,302	4,206,828	29.80	....	.....	....	60,574	692	446,231	59,882
May	50,452	25,495,937	22.56	5,674	3,609,808	28.40	....	.....	....	56,126	521	334,048	55,605
June	55,020	26,430,694	21.45	6,407	3,786,254	26.40	....	.....	....	61,427	409	273,179	61,018
July	47,971	22,599,799	21.03	6,691	3,845,099	25.66	....	.....	....	54,662	596	370,533	54,066

Source: Bureau of the Census, U. S. Department of Commerce. * Adjusted to agree with total gross imports

Notes: (1) Figures for latex are on a dry weight basis. (2) Figures for re-exports include natural rubber (dry and latex) and guayule. (3) In the years 1940 through 1943, crepe sole rubber imports were reported under separate classification. Such imports, which are included under natural rubber, dry above, were: 856,294 pounds, valued at $191,097 in 1940; 379,607 pounds, valued at $85,924 in 1941; 662,503 pounds, valued at $159,530 in 1942; and 21,653 pounds, valued at $5,215 in 1943.

Natural Rubber
(Including Latex and Guayule)

(All Quantities in Long Tons)

Year	New Supply	Consumption	Re-Exports	Stocks On Hand at End of Period
1937	600,479	543,600	7,902	262,204
1938	411,983	437,031	5,652	231,500
1939	499,473	592,000	13,125	125,800
1940	818,243	648,500	7,060	288,864
1941	1,029,007	775,000	5,376	533,344
1942	282,653	376,791	10,856	422,714
1943	55,329	317,634	20,815	139,594
1944	107,834	144,113	9,665	93,650
1945	135,672	105,429	6,743	118,715
1946	400,687	277,597	4,338	237,467
1947	688,354	562,661	4,101	129,038
1948	735,227	627,332	6,673	141,541
1949	660,792	574,522	6,253	106,619
1950	802,249	720,268	8,644	89,215
1951	733 048	454,015	2.603	76.569
1952	805,997	453,846	3,024	95,260
1952:				
July	49,251	32,760	136	84,839
Aug.	67,139	32,941	373	86,657
Sept.	52,785	45,110	279	84,150
Oct.	55,651	45,110	337	82,861
Nov.	48,777	41,749	585	86,243
Dec.	78.148	44,790	615	95,260
1953:				
Jan.	57,517	47,766	528	97,730
Feb.	48 455	45,231	981	94,151
Mar.	56,786	50,707	605	98,627
Apr.	60,578	49,375	692	108,892
May	56,280	46,889	521	113,532
June	61,423	45,224	409	112,959
July	54,661	43,929	596	118,825
Aug.	44,156	43,732	567	119,332
Sept.	.....	45,283	582	122,876

Source: Rubber Division, NPA, U. S. Department of Commerce.

U.S. Gross Imports of Balata, Jelutong, Gutta-Percha, etc.

(All Quantities in Long Tons)

	Balata		Jelutong		Gutta-Percha & Other Guttas	
Year	Tons	Value	Tons	Value	Tons	Value
1936	535	199,368	6,163	1,296,364	1,568	555,643
1937	354	151,344	7,109	2,017,786	1,122	440,894
1938	509	181,140	9,132	2,944,504	444	204,582
1939	694	265,553	6,640	1,603,418	1,740	539,255
1940	648	300,500	7,451	2,449,137	2,340	1,004,885
1941	924	489,514	8,821	2,954,001	1,783	607,025
1942	1,544	1,107,059	1,200	530,296	804	525,763
1943	1,047	708,701	35	14,840	....	.....
1944	1,012	660,805	88	45,578	10	4,999
1945	1,361	907,253	....	.....	36	21,970
1946	2,281	2,233,065	304	256,169	423	458,064
1947	1,982	2,276,531	2,878	1,496,887	392	779,591
1948	1,195	805,078	3,401	2,377,765	423	542,788
1949	1,391	814,554	1,043	834,978	197	189,021
1950	2,117	1,589,885	1,789	1,515,162	541	745,418
1951	2,452	1,973,271	1,669	2,608,359	383	430,539
1952	988	762,994	1,636	2,094,983	282	385,890
1952:						
May	57	32,488	92	141,257	26	27,853
June	57	31,787	212	273,357	50	50,941
July	55	35,941	100	148,350	16	18,422
Aug.	16	9,037	142	193,364	28	31,011
Sept.	109	51,414	148	183,692	15	12,291
Oct.	130	125,137	95	99,181	20	17,937
Nov.	176	139,154	78	67,764	18	23,392
Dec.	132	145,270	101	87,548	14	25,878
1953:						
Jan.	...	.....	77	155,276	6	10,474
Feb.	105	67,265	120	182,792	21	32,473
Mar.	84	74,828	97	83,918	22	44,791
Apr.	309	196,917	87	76,143	7	7,761
May	53	27,463	552	64,822	5	3,388
June	106	56,457	90	93,063	16	16,565
July	160	79,349	66	59,003	40	48,868

Source: U. S. Department of Commerce.

Armour

Fatty Acids

for Rubber

RUBBER STEARIC

DOUBLE PRESSED STEARIC

PURE STEARIC

OLEIC ACID

RED OIL

CORN OIL ACID

Manufactured by
ARMOUR CHEMICAL DIVISION

Represented by
TUMPEER CHEMICAL CO.
333 NORTH MICHIGAN AVENUE
CHICAGO 1, ILLINOIS

Sure sales builders...
the appealing odors of
RESODORS (for plastics) and
PARADORS® (for rubber), products of

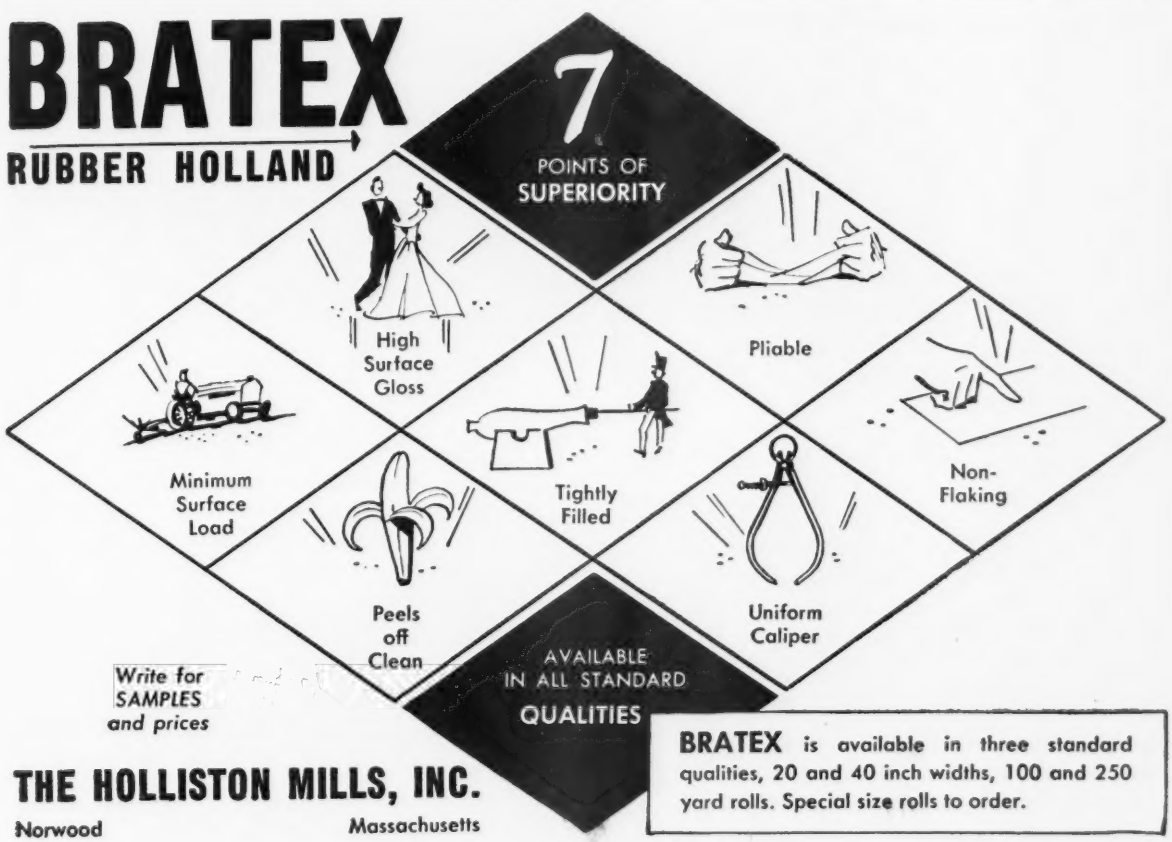
SINDAR Corporation
Industrial Aromatics and Chemicals

330 West 42nd St., New York 36, N. Y.
Branches: Philadelphia • Boston • Cincinnati
Detroit • Chicago • Seattle • Los Angeles • Toronto

Technical Bulletin on request

BRATEX
RUBBER HOLLAND

7 POINTS OF SUPERIORITY



AVAILABLE IN ALL STANDARD QUALITIES

Write for SAMPLES and prices

BRATEX is available in three standard qualities, 20 and 40 inch widths, 100 and 250 yard rolls. Special size rolls to order.

THE HOLLISTON MILLS, INC.
Norwood Massachusetts

Synthetic Rubber—Totals

(GR-S, Neoprene, Butyl, and Buna N Types)

(All Quantities in Long Tons)

Year	Production	Imports	Consumption	Exports	Stocks On Hand at End of Period
1942	22,434	.....	17,651	1,419	4,612
1943	231,722	.....	170,891	18,148	41,568
1944	762,630	11,043	566,670	104,266	142,927
1945	820,373	10,407	693,580	83,778	203,454
1946	740,026	7,709	761,699	72,920	114,963
1947	508,702	1,093	559,566	11,385	62,366
1948	488,343	15,671	442,072	4,874	115,111
1949	393,690	17,242	414,381	6,483	98,042
1950	476,184	25,722	538,289	7,652	52,758
1951	845,159	10,085	758,897	9,249	129,912
1952	798,556	19,891	807,037	22,101	118,987
1953:					
May	85,302	1,058	72,234	2,274	132,109
June	80,227	919	71,751	1,769	143,789
July	79,360	991	61,299	1,910	159,486
Aug.	68,299	570	59,241	1,975	169,152
Sept.	60,677	727	58,457	1,943	167,518

Source: U. S. Department of Commerce.
Notes: (1) These figures are revised from time to time and the latest available issue should be consulted for the most accurate data. (2) Figures shown include the output of both government and privately-owned plants. (3) Figures for 1941 are estimated.

Synthetic Rubber—By Type

(All Quantities in Long Tons)

New Supply

	GR-S (Buna S)	GR-M (Neoprene)	GR-I (Butyl)	Buna N Types	Total
1945	724,859	45,672	52,378	7,871	830,780
1946	613,408	47,766	80,823	5,738	747,735
1947	408,858	31,495	62,824	6,618	509,795
1948	405,492	34,848	56,662	7,012	504,014
1949	310,599	35,215	54,046	11,072	410,932
1950	378,887	50,067	60,915	12,037	501,906
1951	704,529	58,907	76,475	15,333	855,244
1952	654,854	65,745	81,630	16,228	818,447

Consumption

1945	600,145	42,394	43,012	8,029	693,580
1946	632,126	44,357	79,228	5,988	761,699
1947	448,589	37,703	68,838	4,536	559,666
1948	345,313	32,118	58,870	5,771	442,072
1949	299,420	31,753	50,855	8,827	414,381
1950	416,230	43,781	66,348	11,930	538,289
1951	626,444	48,887	70,500	13,066	758,897
1952	666,420	55,522	71,229	13,866	807,037

Exports

1945	76,555	5,837	980	406	83,778
1946	68,763	2,642	495	797	72,697
1947	7,951	2,617	62	755	11,385
1948	1,093	2,875	21	885	4,874
1949	1,401	3,330	178	1,574	6,483
1950	900	4,826	31	1,895	7,652
1951	483	6,825	216	1,725	9,249
1952	9,467	9,813	126	2,695	22,101

Stocks at End of Period

1945	170,571	9,703	18,378	4,802	203,454
1946	81,483	10,470	19,478	3,755	115,186
1947	40,606	5,237	13,184	3,339	62,366
1948	96,282	5,072	10,995	2,762	115,111
1949	77,731	4,654	12,224	3,433	98,042
1950	36,942	5,733	7,243	2,840	52,758
1951	105,271	8,379	12,481	3,821	129,912
1952	83,861	8,535	22,716	3,875	118,987

Source: U. S. Department of Commerce.
Notes: (1) These figures are revised from time to time and the latest available issue should be consulted for the most accurate data. (2) Figures for GR-M and Buna N Types include production of privately-owned plants.

Gasoline Consumption

(In Thousands of Barrels of 42 Gallons)

	1946	1947	1948	1949	1950	1951	1952	1953
Jan.	51,746	57,057	61,308	63,125	66,981	80,670	86,863	89,634
Feb.	47,654	50,551	56,487	57,980	53,274	72,864	82,043	86,458
Mar.	56,703	59,947	68,171	73,282	78,780	86,962	87,065	98,158
Apr.	62,111	64,140	72,183	75,318	80,350	87,573	98,653	102,044
May	66,800	70,865	77,186	81,665	89,035	100,266	101,137	105,867
June	63,247	71,329	78,044	83,374	90,174	96,364	99,305	105,918
July	60,076	73,441	81,428	83,129	91,677	100,567	105,307	114,703
Aug.	66,729	72,089	80,351	84,707	94,507	101,453	102,954	112,960
Sept.	62,268	71,384	76,159	80,832	86,725	91,891	100,095	.....
Oct.	66,637	73,277	75,164	79,327	89,067	100,209	103,689	.....
Nov.	61,345	64,158	72,560	76,346	82,688	88,581	91,326	.....
Dec.	61,101	67,506	72,162	75,628	81,032	84,551	95,817	.....
Total	735,417	795,015	871,270	913,713	994,290	1,091,951	1,154,254	

Source: U. S. Bureau of Mines.

Reclaimed Rubber

(Including Natural and Synthetic)

(All Quantities in Long Tons)

Year	Production	Consumption—Tons	Consumption—% to Crude [a]	Exports	Stocks On Hand at End of Period
1937	185,033	162,000	29.8	13,233	28,800
1938	122,400	120,800	27.6	7,403	23,000
1939	186,000	170,000	28.7	12,611	25,250
1940	208,971	190,244	29.3	11,347	32,636
1941	274,202	251,231	32.2	13,851	41,750
1942	286,007 [b]	254,820	64.6	30,405	42,532
1943	304,058 [c]	291,082	59.6	15,678	46,201
1944	260,631 [d]	251,083	35.3	11,800	43,832
1945	243,309	241,036	30.2	13,413	28,155
1946	295,612	275,410	26.5	14,461	33,666
1947	291,395	288,395	24.8	14,556	35,943
1948	266,861	261,113	24.4	11,428	32,630
1949	224,029	226,679	22.5	10,637	28,263
1950	314,008	303,733	24.1	11,740	35,708
1951	366,700	346,121	28.6	14,722	45,082
1952	274,981	280,002	22.2	11,180	30,664
1953:					
Mar.	27,964	27,334	21.2	1,115	30,280
Apr.	29,032	26,483	20.9	1,261	31,263
May	27,142	25,213	21.2	964	31,763
June	26,554	24,637	20.5	962	32,791
July	23,292	23,414	22.3	807	31,506
Aug.	22,607	22,666	22.0	838	30,318
Sept.	23,523	22,181	21.4	823	30,238

Source: U. S. Department of Commerce.
Notes: (1) These figures are revised from time to time and the latest available issue should be consulted for the most accurate data. [a] Includes natural and synthetic rubber. [b] Includes 893 tons of imports. [c] Includes 67 tons of imports. [d] Includes 21 tons of imports.

Automobile Production in U. S.

(Civilian Production Only)

Year	Passenger Cars	Trucks	Total	Year	Passenger Cars	Trucks	Total
1933	1,573,512	346,545	1,920,057	1943	0	4,501	4,501
1934	2,177,919	575,192	2,753,111	1944	0	124,819	124,819
1935	3,252,244	694,690	3,946,934	1945	83,792	313,643	397,435
1936	3,669,528	781,862	4,451,390	1946	2,148,699	930,760	3,079,459
1937	3,915,889	892,382	4,808,271	1947	3,558,178	1,220,634	4,778,812
1938	2,000,985	485,852	2,486,837	1948	3,909,270	1,363,856	5,273,126
1939	2,866,796	704,308	3,571,104	1949	5,108,841	1,123,736	6,232,577
1940	3,692,328	721,637	4,413,965	1950	6,665,836	1,332,263	7,998,099
1941	3,744,500	875,381	4,619,681	1951	5,337,729	1,420,432	6,758,161
1942	220,814	133,083	353,897	1952	4,320,788	1,212,390	5,533,178
1952:							
Jan.	273,639	100,993	374,632	July	168,327	43,231	211,558
Feb.	334,058	100,533	434,591	Aug.	218,577	52,056	270,633
Mar.	373,237	109,167	482,404	Sept.	438,397	112,375	550,772
Apr.	416,155	112,833	528,988	Oct.	471,808	132,064	603,872
May	398,286	105,208	503,494	Nov.	405,111	114,106	519,217
June	408,700	109,526	518,226	Dec.	418,977	115,814	534,791
1953:							
Jan.	453,319	111,599	564,918	July	599,077	105,622	704,699
Feb.	486,071	96,740	582,811	Aug.	599,134	105,622	704,756
Mar.	566,320	134,129	700,449	Sept.	513,457	101,478	614,935
Apr.	596,633	126,788	723,421	Oct.	475,287	98,051	573,338
May	549,677	93,493	643,170	Nov.	.....	.....	.....
June	587,549	74,063	661,612	Dec.	.....	.....	.....

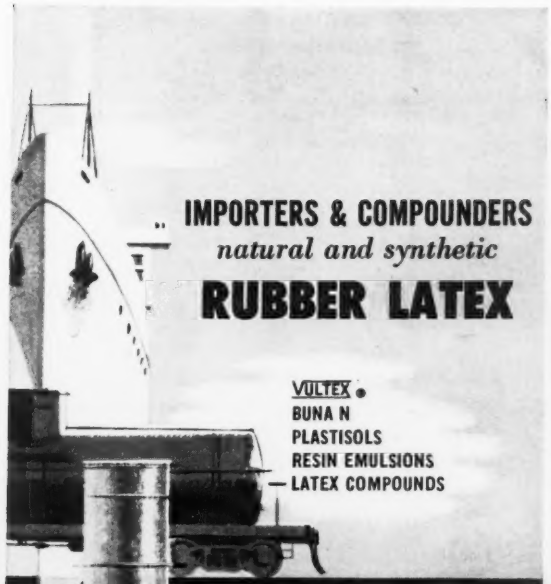
Source: Automobile Manufacturers Association.
Note: Figures are based on factory sales. Revisions are made from time to time in these figures and the latest issue should be consulted for accuracy.

Rim Production

	1948	1949	1950	1951	1952
Passenger Car	23,842,796	27,715,344	35,096,404	29,145,367	24,936,844
Truck & Bus	6,920,231	4,238,174	6,625,129	6,877,419	5,752,674
Agricultural	3,140,882	2,695,430	2,853,483	3,019,581	2,073,116
Earth Mover	13,330	9,895	15,602	28,026	31,791
Total	33,917,239	34,658,843	44,590,618	39,070,393	32,794,425

	1953					
	May	June	July	Aug.	Sept.	Oct.
Passenger Car	2,953,694	3,087,588	2,882,348	2,425,096	2,151,010	2,286,669
Truck & Bus	442,562	342,900	380,636	399,013	342,106	304,713
Agricultural	188,430	196,957	138,098	121,468	128,262	94,063
Earth Mover	1,954	2,577	2,760	1,348	1,793	1,594
Total	3,586,640	3,360,022	3,403,842	2,946,925	2,623,171	2,687,039

Source: The Tire & Rim Association, Inc.



IMPORTERS & COMPOUNDERS
natural and synthetic
RUBBER LATEX

VULTEX •
BUNA N
PLASTISOLS
RESIN EMULSIONS
— LATEX COMPOUNDS

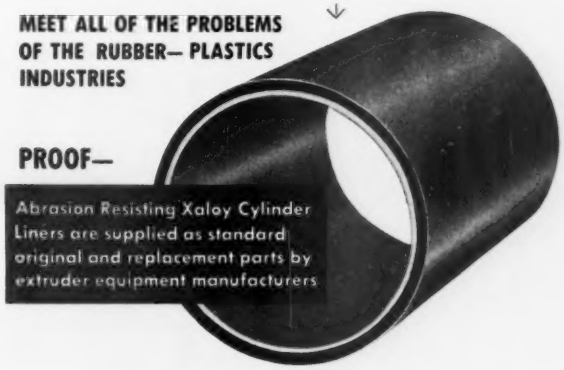
GENERAL LATEX & CHEMICAL CORP.
666 Main St., Cambridge 39, Mass.
GENERAL LATEX & CHEMICAL CO. (OF GEORGIA)
1206 Lamar St., Dalton, Georgia
GENERAL LATEX & CHEMICALS (CANADA) LTD.
Verdun Industrial Bldg., Verdun, Montreal, Que.
SALES REPRESENTATIVES IN PRINCIPAL CITIES
Exclusive Agents for sale in USA of
Harrisons & Crosfield Malayan Latex

FOR EXTRUDERS, PLASTICIZERS, STRAINERS, TUBERS

Only *Xaloy* Liners

MEET ALL OF THE PROBLEMS OF THE RUBBER— PLASTICS INDUSTRIES

PROOF—



Abrasion Resisting Xaloy Cylinder Liners are supplied as standard original and replacement parts by extruder equipment manufacturers

Only XALOY Cylinder Liners assure—
- Absolute maximum service life
- Fast, easy liner replacement
- Exceptional and uniform hardness
- Highly polished liner surface

write for engineering and production data book

Xaloy
INDUSTRIAL RESEARCH LABORATORIES
Division of Honolulu Oil Corporation
961 E. Slauson Ave., Los Angeles 11, California

Manufacturers of CANARY LINERS

Mildew-proofing *and* Flame-proofing Cotton Fabrics as per Government Specifications. *Write or Wire for Samples and Quotations.*

EXPORT AGENT
Binney & Smith, International, Inc.,
41 E. 42nd St., New York 17, N. Y.

CANADIAN AGENT
Binney & Smith, Limited
33 Edward St., Toronto 3, Ontario, Canada

J. J. WHITE Products Co.
7000 UNION AVENUE
CLEVELAND 5, OHIO

Automotive Pneumatic Casings

(Thousands of Units)

	Shipments					
	Original Equipment	Replacement	Export	Total	Production	Inventory End of Period
1942 (total)	6,680	8,872	207	15,759	15,351	6,247
Passenger Car.	910	2,734	38	3,682	2,790	4,432
Truck and Bus	5,770	6,138	169	12,077	12,561	1,815
1943 (total)	6,128	18,547	225	24,900	20,423	1,883
Passenger Car.	82	10,606	71	10,759	7,630	1,132
Truck and Bus	6,046	7,941	154	14,141	12,803	751
1944 (total)	6,654	26,439	263	33,356	33,446	2,013
Passenger Car.	208	18,330	130	18,668	18,819	1,218
Truck and Bus	6,446	8,109	133	14,688	14,627	795
1945 (total)	5,984	36,479	504	42,967	44,524	3,077
Passenger Car	1,115	25,463	222	26,800	28,200	2,214
Truck and Bus	4,869	11,016	282	16,167	16,324	863
1946 (total)	15,310	65,490	1,512	82,312	82,298	2,448
Passenger Car.	11,086	54,684	653	66,423	66,466	1,763
Truck and Bus	4,224	10,806	859	15,889	15,832	685
1947 (total)	25,056	62,871	3,256	91,183	95,550	6,949
Passenger Car.	19,644	52,857	1,608	74,109	77,795	5,444
Truck and Bus	5,412	10,014	1,648	17,074	17,755	1,505
1948 (total)	26,845	49,148	1,787	77,781	81,314	10,698
Passenger Car.	21,589	41,295	656	63,540	66,738	8,773
Truck and Bus	5,256	7,853	1,132	14,241	14,576	1,925
1949 (total)	31,584	43,466	1,467	76,517	76,369	10,638
Passenger Car.	28,129	36,440	509	65,077	65,140	8,904
Truck and Bus	3,456	7,026	958	11,440	11,228	1,734
1950 (total)	41,349	56,808	1,430	99,587	92,754	3,794
Passenger Car.	36,678	47,103	642	84,423	78,598	3,050
Truck and Bus	4,671	9,705	788	15,164	14,156	743
1951 (total)	32,153	44,612	1,677	78,442	83,405	8,765
Passenger Car.	26,729	34,226	723	61,678	65,546	6,973
Truck and Bus	5,424	10,386	954	16,764	17,859	1,791
1952 (total)	29,484	54,342	1,520	85,346	90,411	14,110
Passenger Car.	24,106	45,458	741	70,305	74,341	11,251
Truck and Bus	5,378	8,884	779	15,041	16,070	2,859
1953:						
May (total)	3,200	5,604	139	8,942	8,987	16,973
Passenger Car.	2,822	4,816	75	7,712	7,655	13,656
Truck and Bus	378	788	64	1,230	1,331	3,318
June (total)	3,537	5,601	142	9,279	8,572	16,259
Passenger Car.	3,216	4,819	75	8,111	7,311	12,852
Truck and Bus	320	782	66	1,168	1,261	3,406
July (total)	3,616	5,793	146	9,555	8,173	14,883
Passenger Car.	3,181	4,953	99	8,232	7,119	11,736
Truck and Bus	435	840	48	1,323	1,061	3,147
Aug. (total)	3,130	5,523	145	8,798	7,416	13,550
Passenger Car.	2,757	4,649	87	7,493	6,406	10,684
Truck and Bus	372	874	58	1,304	1,010	2,866
Sept. (total)	2,837	4,437	149	7,424	7,148	13,287
Passenger Car.	2,503	3,691	84	6,278	6,082	10,494
Truck and Bus	334	747	65	1,146	1,067	2,793

Source: The Rubber Manufacturers Association, Inc.

Cotton, Rayon and Nylon Tire Fabrics

(Production in Thousands of Pounds)

	Cotton				Rayon and Nylon[b]		
	Tire Cord Not Woven	Cord Fabric Woven	Chafer and All Other Tire Fabrics	Total	Tire Cord Not Woven	Tire Cord And Other Tire Fabrics	Total
1950:							
Jan.-Mar.	3,939	19,210	12,948	36,097	12,469	60,981	73,450
Apr.-June	11,077	29,498	14,071	54,646	11,510	59,966	71,476
July-Sept.	10,529	39,792	15,101	65,152	13,161	61,614	74,775
Oct.-Dec.	13,314	37,759	14,405	65,578	12,942	63,399	76,341
Total	38,859	126,259	56,525	221,473	50,082	245,960	296,476
1951:							
Jan.-Mar.	11,497	38,269	16,737	66,503	11,878	65,512	77,390
Apr.-June	12,608	42,491	17,055	72,154	11,979	61,957	73,936
July-Sept.	16,744	44,340	17,433	78,517	12,091	67,982	80,073
Oct.-Dec.	14,237	43,820	13,899	71,956	*a*	83,354	83,354
Total	55,116	168,920	65,124	289,160	35,948	278,805	314,753
1952:							
Jan.-Mar.	11,226	36,378	12,971	60,575	14,434	72,249	86,683
Apr.-June	4,661	24,612	10,742	40,015	16,874	81,249	98,123
July-Sept.	335	9,257	9,460	19,052	18,128	80,355	98,483
Oct.-Dec.	*c*	4,728*a*	11,580	16,308	19,436	81,171	100,607
Total	16,222	74,975	44,753	135,950	68,872	315,024	383,896
1953:							
Jan.-Mar.	*c*	4,378*a*	15,477	19,855	20,487	91,742	112,229
Apr.-June	*c*	5,713*a*	15,880	21,593	18,906	95,711	114,617
July-Sept.	.....	.....	.....	.....	.....	.....	.....
Oct.-Dec.	.....	.....	.....	.....	.....	.....	.....
Total	.....	.....	.....	.....	.....	.....	.....

Source: U. S. Bureau of the Census.

Notes: (a) Included with tire cord and fabrics to avoid disclosures of operations of individual mills. (b) Fuel cell fabrics are not included with rayon and nylon tire cord and fabrics. (c) Included with tire cord not woven. (d) Included with chafer and all other tire fabrics.

Automotive Inner Tubes

(Thousands of Units)

	Shipments					
	Original Equipment	Replacement	Export	Total	Production	Inventory End of Period
1944	6,460	20,569	196	27,224	27,488	2,813
1945	5,988	33,906	411	40,304	41,742	3,627
7946	15,327	59,357	1,424	76,108	77,251	3,820
1947	25,046	46,560	2,483	74,088	79,181	8,059
1948	26,833	40,548	1,119	68,499	70,033	9,641
1949	31,521	31,450	887	63,858	65,114	10,657
1950	41.240	42,671	811	84,723	80.179	....
1951	32,151	32,284	1,071	65,507	67.249	10.094
1952	29,451	32,985	1,014	63,449	65,073	12,036
1953:						
May	3,200	3,315	71	6,586	6,940	12,592
June	3,539	3,298	71	6,907	7,035	12,811
July	3,614	3,600	73	7,288	6,395	12,097
Aug.	3,139	3,315	75	6,529	5,679	10,226
Sept.	2,841	2,768	111	5,720	5,656	11,288

Source: The Rubber Manufacturers Association, Inc.

Smoked Sheets—Spot Closing Prices

(New York Market—Cents per Pound)

Year	High	Low	Avg.	Year	High	Low	Avg.
1911	184	114	141.30	1932	4¾	2½	3.49
1912	140	108	121.60	1933	9⅞	2⅝	5.96
1913	113	59	82.04	1934	15⅞	8¾	12.92
1914	93	56	65.33	1935	13¼	10½	12.37
1915	79	58½	65.85	1936	23	13½	16.41
1916	102	55	72.50	1937	26⅞	14	19.39
1917	90	52	72.23	1938	17⅞	10¼	14.64
1918	70	40	60.15	1939	24	14⅜	17.57
1919	57	38½	48.70	1940	24	18¼	20.10
1920	56½	16	36.30	1941	24⅞	19⅛	22.40
1921	21¼	11½	16.36	1942	22½	22½	22.50
1922	28⅛	13⅝	17.50	1943	22½	22½	22.50
1923	37⅛	24¾	29.45	1944	22½	22½	22.50
1924	40⅛	17⅜	26.20	1945	22½	22½	22.50
1925	121	34⅜	72.46	1946	22½	22½	22.50
1926	88½	36¾	48.50	1947	25	14	20.00
1927	41⅜	33	37.72	1948	25	18	21.99
1928	41¾	17	22.48	1949	19¾	15⅞	17.57
1929	26¾	15½	20.55	1950	86	18	41.10
1930	16½	7½	11.98	1951	76	52	(*a*)
1931	8⅝	4¼	6.17	1952*	33	26½	29.15

Note: Price was fixed by Government on August 6, 1941, at 22½c a pound for non-war uses. Free trading was resumed May 1, 1947. (a) Free trading suspended March 31, 1951. GSA selling price ranged between 52 and 66c during balance of year. * Free trading was resumed on July 1, 1952; figures represent only July through December, 1952.

Spot Closing Cotton Prices

(Middling Upland Grade—New York Market—in Cents)

Average Monthly Price Per Pound

	1946	1947	1948	1949	1950	1951	1952	1953
Jan.	25.49	32.58	36.09	33.37	31.89	45.04	42.96	33.24
Feb.	26.57	33.91	33.63	33.41	32.79	(a)	41.64	33.76
Mar.	27.52	35.89	35.04	33.44	32.65	46.06	41.70	34.10
Apr.	28.40	35.89	38.10	33.84	33.23	46.06	41.79	33.85
May	28.17	36.51	38.57	33.73	33.64	46.06	39.68	34.30
June	29.89	37.83	38.12	33.56	34.61	46.06	41.31	34.11
July	34.11	38.03	34.89	32.99	38.11	41.21	40.37	34.20
Aug.	36.31	34.83	32.23	32.06	38.93	35.93	40.42	33.82
Sept.	37.59	32.21	31.92	30.94	41.62	36.20	39.75	33.69
Oct.	36.79	32.39	32.01	30.32	40.66	38.13	37.52	33.53
Nov.	31.50	34.50	32.15	30.52	43.11	42.70	35.59	....
Dec.	33.03	36.74	32.90	31.08	43.37	43.32	33.76	....
Average for Year	31.28	35.11	34.64	32.44	37.05	42.43	39.71	....

Note: The Government established a ceiling price of 45.76c for spot cotton on March 3, 1951. (a) Trading suspended during February.

Consumption of Vinyl Resins

(In Thousands of Pounds)

	Sheeting and Film[a]	Textile and Paper Coating Resins	Molding and Extrusion Materials	All Other
1950	227,149	46,044	113,889	21,868
1951	161,547	43,688	134,890	23,934
1952	154,902	42,298	140,872	31,793
1953:				
Feb.	16,516	4,145	13,847	2,919
Mar.	17,575	4,950	14,906	3,683
Apr.	16,574	4,934	15,332	2,800
May	14,766	4,126	13,509	3,084

Source: U. S. Tariff Commission.

Note: (a) Includes weight of fillers, plasticizers, extenders and safety glass sheeting. Beginning January, 1951, statistics are listed on a resin content basis.

Now . . . Up-To-The-Minute

INTERNATIONAL TECHNICAL ASSISTANCE

- To tire and other rubber manufacturers abroad, who desire to learn the latest American "Know-How" . . . cut manufacturing costs—we offer comprehensive Technical Assistance at low cost.
- Dayton Rubber's I.T.A. plan has been in existence for 20 years. Rubber experts and teachers that give unexcelled technical assistance at a surprisingly nominal cost . . . all backed by 48 years of recognized leadership in the rubber industry . . . with 4 U. S. plants.
- We train your personnel in these modern plants . . . help you establish the latest formulae for processing natural and all new types of synthetic rubbers and textiles . . . latest "Know-How" in Tubeless Tires, Butyl Tubes, Rayon and Nylon Cords, Carbon Blacks. We also design factories and supervise machinery installations if desired.

Write: International Technical Assistance Division

INTERNATIONAL TECHNICAL ASSISTANCE DIVISION I.T.A. THE DAYTON RUBBER CO. DAYTON, OHIO

Dayton Rubber

Dayton 1, Ohio, U. S. A.
Cable Address: Thorobred

SINCE 1905, MANUFACTURERS OF TIRES AND TUBES

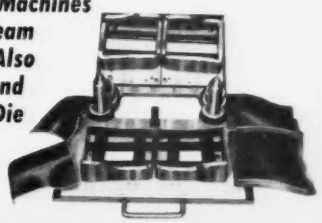
SAVE TIME SAVE MONEY with INDEPENDENT and NEW ERA DIES

CLICKER-WALKER PUNCH PRESS and MAUL HANDLE

Dies For Every Conceivable Purpose

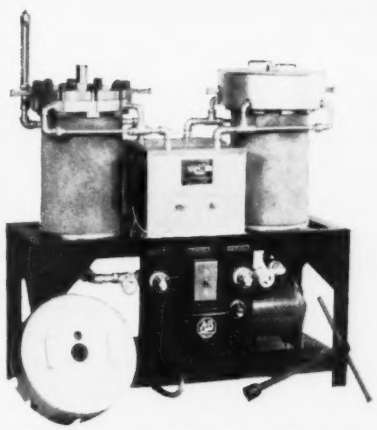
DISTRIBUTORS FOR:

Fales Clicker Machines and Seelye Beam Die Presses. Also Hard Maple and Composition Die Blocks and Pads. Raw Hide Mauls.

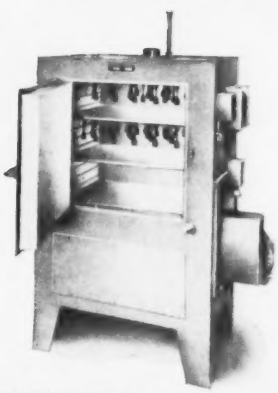


INDEPENDENT DIE & SUPPLY COMPANY
2602 LaSalle Place • St. Louis 4, Missouri
ASSOCIATE:
NEW ERA DIE CO. York County, Red Lion, Pa.

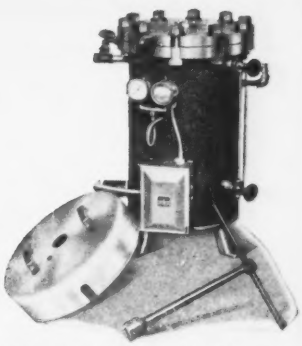
APPARATUS FOR THE RUBBER LABORATORY



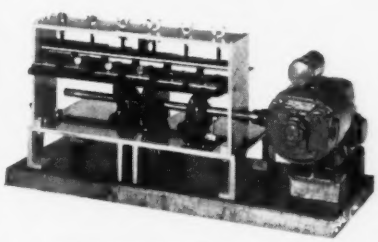
COMBINATION BIERER-DAVIS OXYGEN AGING AND AIR HEAT TEST OUTFIT (Outfit shown with 2 bombs. Outfit with one bomb can also be supplied.) A.S.T.M. D 572-52 and D 454-52.



EMERSON OVEN for Oven Aging of Rubber Samples A.S.T.M. D-573-52.

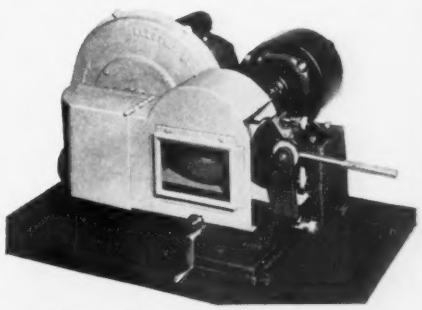


AIR PRESSURE HEAT TEST BOMB (STEAM HEATED) A.S.T.M. D 454-52



ROSS RUBBER FLEXING MACHINE

EMERSON APPARATUS CO.
183 Tremont Street
Melrose, Mass.



RUBBER SAMPLE BUFFING MACHINE (Shown with Rotary Platen and Dust Collector with Suction Blower.)

Rubber Industry Employment, Earnings and Hours

All Rubber Products

Mo.	1952 Production Workers (thousands)	1952 Average Weekly Earnings	1952 Average Weekly Hours	1952 Average Hourly Earnings	1953 Production Workers (thousands)	1953 Average Weekly Earnings	1953 Average Weekly Hours	1953 Average Hourly Earnings
Jan.	210.4	$74.03	40.9	$1.81	219.2	$78.09	41.1	$1.90
Feb.	208.2	73.31	40.5	1.81	219.2	79.30	41.3	1.92
Mar.	208.0	72.54	40.3	1.80	220.5	80.29	41.6	1.93
Apr.	205.6	71.28	39.6	1.80	220.5	79.32	41.1	1.93
May	205.7	73.31	40.5	1.81	220.2	78.18	40.3	1.94
June	206.6	75.26	40.9	1.84	220.1	76.99	40.1	1.92
July	194.7	72.07	39.6	1.82	213.5	78.18	40.3	1.94
Aug.	203.1	73.49	40.6	1.81	215.5	....	....	....
Sept.	208.3	75.21	41.1	1.83	....	....	....	....
Oct.	212.5	75.53	41.5	1.82	....	....	....	....
Nov.	216.6	76.86	41.1	1.87	....	....	....	....
Dec.	219.2	79.19	41.9	1.89	....	....	....	....

Tires and Tubes

Jan.	91.3	87.12	40.9	2.13	91.5	89.24	40.2	2.22
Feb.	91.1	85.67	40.6	2.11	91.2	91.80	40.8	2.25
Mar.	90.8	83.58	39.8	2.10	91.6	93.83	41.7	2.25
Apr.	91.4	81.74	39.3	2.08	92.2	91.58	40.7	2.25
May	91.5	84.84	40.4	2.10	92.7	91.30	40.4	2.26
June	91.8	87.95	41.1	2.14	92.4	88.13	39.7	2.22
July	90.0	84.38	39.8	2.12	90.8	90.72	40.5	2.24
Aug.	88.6	85.46	40.5	2.11	....	....	....	....
Sept.	90.0	86.28	40.7	2.12	....	....	....	....
Oct.	90.2	85.88	40.7	2.11	....	....	....	....
Nov.	90.8	87.23	40.2	2.17	....	....	....	....
Dec.	91.8	90.42	41.1	2.20	....	....	....	....

Rubber Footwear

Jan.	24.1	60.15	40.1	1.50	24.5	64.96	40.1	1.62
Feb.	23.4	60.50	39.8	1.52	24.2	67.57	41.2	1.64
Mar.	22.9	61.51	40.2	1.53	24.2	67.57	41.2	1.64
Apr.	20.9	59.34	39.3	1.51	23.8	67.82	41.1	1.65
May	22.3	60.65	39.9	1.52	23.3	60.31	37.0	1.63
June	22.5	61.26	40.3	1.52	23.1	60.64	37.2	1.63
July	18.0	58.95	39.3	1.50	22.3	61.50	37.5	1.64
Aug.	22.7	61.81	40.4	1.53	....	....	....	....
Sept.	23.5	62.99	40.9	1.54	....	....	....	....
Oct.	24.3	63.71	41.1	1.55	....	....	....	....
Nov.	24.7	68.30	41.9	1.63	....	....	....	....
Dec.	25.2	66.49	41.3	1.61	....	....	....	....

All Other Rubber Products

Jan.	95.0	65.51	41.2	1.59	103.2	71.74	42.2	1.70
Feb.	93.7	64.55	40.6	1.59	103.8	71.06	41.8	1.70
Mar.	94.3	64.87	40.8	1.59	104.7	71.72	41.7	1.72
Apr.	93.3	63.84	39.9	1.60	104.5	71.21	41.4	1.72
May	91.9	65.28	40.8	1.60	104.2	70.93	41.0	1.73
June	92.3	65.85	40.9	1.61	104.6	70.93	41.0	1.73
July	86.7	62.25	39.4	1.58	100.4	70.82	40.7	1.74
Aug.	91.8	65.28	40.8	1.60	....	....	....	....
Sept.	94.8	67.65	41.5	1.63	....	....	....	....
Oct.	98.0	68.95	42.3	1.63	....	....	....	....
Nov.	101.1	69.81	41.8	1.67	....	....	....	....
Dec.	102.2	72.33	42.8	1.69	....	....	....	....

Source: U. S. Department of Labor.

Note: Data are based upon reports from cooperating establishments covering both full and part-time employees who work during, or received pay for, any part of the pay period ending nearest the 15th of the month. These employment series have been adjusted to first quarter 1951 benchmark levels indicated by data from government social insurance programs. Hours and earnings data pertain only to production and related workers.

Production Index for the Rubber Industry

Production 1935-1939 = 100

(Based on man-hours)

	1951	1952	1953		1951	1952	1953
Jan.	244	248	268	July	243	225	261
Feb.	235	243	270	Aug.	243	242	261
Mar.	239	242	275	Sept.	245	252	....
Apr.	238	235	272	Oct.	239	260	....
May	247	242	269	Nov.	245	264	....
June	251	246	270	Dec.	250	272	....

Source: U. S. Department of Commerce.

Sales by the Rubber Industry

(In Millions of Dollars)

	1951	1952	1953		1951	1952	1953
Jan.	454	468	507	July	438	408	511
Feb.	434	442	499	Aug.	467	452	....
Mar.	459	406	510	Sept.	435	482	....
Apr.	439	437	508	Oct.	445	464	....
May	432	424	472	Nov.	438	403	....
June	433	430	488	Dec.	363	438	....

Source: U. S. Department of Commerce.
Note: Figures have been revised to conform to new benchmark levels.

Rubber Manufacturers' Inventories

(Based upon Book-Value)

(In Millions of Dollars)

	1951	1952	1953		1951	1952	1953
Jan.	562	840	915	July	616	884	931
Feb.	555	848	887	Aug.	640	884	....
Mar.	554	865	903	Sept.	659	877	....
Apr.	565	877	916	Oct.	705	874	....
May	583	878	924	Nov.	739	897	....
June	610	864	942	Dec.	799	936	....

Source: U. S. Department of Commerce.

Various Compounding Materials Consumed by the Rubber Industry

Material	1946	1947	1948	1949	1950	1951	1952
Antimony, Primary:							
Short tons	.....	39	41	55	103 [c]	19 [c]	66
% of total	.....	.002	.003	.005	.007	.001	.005
Asphalt: [a]							
Short tons	28,715	32,113	19,967	18,050	26,819	21,414	33,288
% of total	0.7	0.7	0.4	0.3	0.3	0.3	0.4
Barite (Barytes):							
Short tons	20,000	17,000	18,000	14,000	19,000	15,000	14,000
% of total	4.4	3.1	2.85	2.53	3.31	2.13	2.0
Carbon Black:							
Short tons	470,732	471,790	435,282	383,565	515,184	530,614	537,273
% of total	95.3	94.3	95.5	93.3	92.9	93.9	93.1
Clay, Kaolin:							
Short tons	162,393	166,201	176,965	197,341	263,306	231,331	240,982
% of total	12.3	11.5	11.3	13.1	15.0	12.7	13.2
Clay, Fire & Stoneware:							
Short tons	12,951	17,970	15,480	27,148	9,500	.....	9,322
% of total	0.2	0.2	0.2	0.3	0.1	..	0.1
Lime:							
Short tons	3,193	589	1,154	715	908	1,126	2,000
% of total	0.05	0.01	0.02	.0002	.0002	[d]	[d]
Litharge:							
Short tons	2,431	2,205	2,835	1,398	3,047	2,641	2,109
% of total	1.6	1.3	1.8	1.2	1.7	1.7	1.5
Lithopone:							
Short tons	1,607	3,085	4,192	3,245	4,092	3,295	1,523
% of total	1.1	1.9	3.0	4.1	3.9	3.2	2.5
Mica, Ground:							
Short tons	4,951	3,900	4,372	3,856	5,776	6,551	5,126
% of total	8.0	6.0	7.0	7.0	8.0	9.0	7.0
Sulfur:							
Short tons	72,800	72,800	70,560	59,360	75,000	75,000	75,000
% of total	2.2	1.8	1.7	1.5	1.3	1.6	1.6
Talc: [b]							
Short tons	65,980	71,840	66,226	53,400	75,900	70,970	64,476
% of total	14.4	13.9	13.0	12.0	12.0	11.2	10.9
Zinc Oxide:							
Short tons	83,776	82,248	82,895	58,496	82,944	71,507	72,774
% of total	53.1	51.2	54.9	52.5	51.6	48.4	51.2

Source: U. S. Bureau of Mines.
Notes: [a] Solid and semi-solid products of less than 200 penetration. [b] Includes prophyllite and ground soapstone. [c] Does not include precipitated antimony sulfide as in previous years. [d] Negligible.

Take a long time

For this copy of

RUBBER AGE

to reach your desk?

Why not enter your own subscription now — today — and have a copy just for yourself. Rates are:

$5.00 for 1 year in the U.S.

$5.50 in Canada

$6.00 - Foreign

Please enter my subscription to RUBBER AGE for one year starting with the next issue.

☐ Check enclosed ☐ Bill me

Name _____

Title _____

Company _____

Street _____

City and State _____

Please check whether address is ☐ Company or ☐ Home.

STATEMENT REQUIRED BY THE ACT OF AUGUST 24, 1912, AS AMENDED BY THE ACTS OF MARCH 3, 1933, AND JULY 2, 1946 (Title 39, United States Code, Section 233) SHOWING THE OWNERSHIP, MANAGEMENT, AND CIRCULATION of RUBBER AGE, published Monthly at East Stroudsburg, Penna., for October 1, 1953.

1. The names and addresses of the publisher, editor, managing editor, and business manager are:

Publisher, Palmerton Publishing Company, Inc., 250 West 57th St., New York 19, N. Y.; Editor, M. E. Lerner, 250 West 57th St., New York 19, N. Y.; Managing Editor, None; Business Manager, Peter P. Pinto, 250 West 57th St., New York 19, N. Y.

2. The owner is: (If owned by a corporation, its name and address must be stated and also immediately thereunder the names and addresses of stockholders owning or holding 1 percent or more of total amount of stock. If not owned by a corporation, the names and addresses of the individual owners must be given. If owned by a partnership or other unincorporated firm, its name and address, as well as that of each individual member, must be given.)

Palmerton Publishing Company, Inc., 250 West 57th St., New York 19, N. Y.; P. L. Palmerton, 250 West 57th St., New York 19, N. Y.; Peter P. Pinto, 250 West 57th St., New York 19, N. Y.; M. E. Lerner, 250 West 57th St., New York 19, N. Y.; C. T. Jansen, 250 West 57th St., New York 19, N. Y.; E. D. Osborn, 149 East 73rd St., New York 21, N. Y.; Hildegarde E. Palmerton, 56 Vassar Place, Rockville Center, N. Y.

3. The known bondholders, mortgagees, and other security holders owning or holding 1 percent or more of total amount of bonds, mortgages, or other securities are:

None.

4. Paragraphs 2 and 3 include, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting; also the statements in the two paragraphs show the affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner.

PETER P. PINTO, Business Manager.

Sworn to and subscribed before me this 25th day of September, 1953.

(SEAL) NORMAN C. ROLLER, Notary Public.

(My commission expires March 30, 1955)

"RECLAIMED RUBBER"

by **JOHN M. BALL**

The Story of an American Raw Material

★★

CONTENTS

1. Early History
2. Mitchell and the Acid Process
3. Marks and the Alkali Process
4. Miscellaneous Reclaiming Process
5. Companies and Associations
6. Scrap Rubber
7. Manufacture
8. Properties and Uses
9. Statistics
10. World War II

Epilogue: What of the Future?

Bibliography

6 x 9 in.—248 Pages—Illustrated

★★

"It is no exaggeration to say that this is one of the most competent historical studies of an American industry which has yet been published."

Penrose R. Hoopes in MECHANICAL ENGINEERING

PRICE | **$5.00 in United States**
$5.50 in Other Countries

(Add 3% Sales Tax for Copies sent to N.Y. City)

Exclusive Sales Agents

RUBBER AGE

250 West 57th St. New York 19

CLASSIFIED WANT ADS

RATES:

All Classifications (except Positions Wanted):
10c per word in light face type—Minimum, $3.00
15c per word in bold face type—Minimum, $3.00

Positions Wanted:
$1.00 for 30 words or less; extra words, 5c each.

When Box Number is used, add 5 words to word count.

Heading on separate line, $1.00 in light face; $1.20 in bold face.

Advertisements in borders: $15.00 per column inch; maximum, 85 words per inch.

All Classified Advertising must be paid in advance except for advertisers on contract. Send check with copy.

Replies to keyed advertisements will be forwarded to advertiser without charge.

Address all replies to Box Numbers care of RUBBER AGE, 250 West 57th Street, New York 19, N. Y.

Copy for December, 1953, issue, must be received by Tuesday, December 1st.

POSITIONS WANTED

CHEMICAL ENGINEER: Compounder, research on extruded and calendered articles, long experience in designing and setting up rubber footwear plants. Interested Latin America or other foreign proposition. Address Box 808-P, RUBBER AGE.

Rubber Chemist seeking wider responsibilities. Ten years experience in compound and product development including sponge and vinyls. Address Box 781-P, RUBBER AGE.

RUBBER TECHNOLOGIST—Chemical Engineer. Nine years experience development compounding rubber and plastics, engineering, application, and production, all phases mechanical rubber goods. Responsible position—Eastern location. Address Box 786-P, RUBBER AGE.

Latex chemist, over 10 years in responsible position, mainly compounding, dipping, coating. Special interest in research and development. Address Box 790-P, RUBBER AGE.

Send for complete resume if you are interested in obtaining the services of a top grade Plant Manager. Address Box 792-P, RUBBER AGE.

Rubber Chemist: Age 35, married. Eight years of diversified tire compounding experience in product and process development, quality control, raw material evaluation and control. Desires a position of responsibility with opportunities for advancement in a progressive rubber or allied company. Address Box 791-P, RUBBER AGE.

CANADIAN RUBBER CHEMIST, Ch. Eng. 18 years experience compounding, processing mechanicals, drug sundries, footwear, vinyl. Now employed managerial position, available for work in Canada, Europe. Would consider technical sales. Address Box 783-P, RUBBER AGE.

ADHESIVES CHEMIST desires consultant position. Other offers will be acknowledged. Extensive experience in natural and synthetic latices and rubber. Knows pressure sensitives, coatings, backings, vinyl solvent and latex type for plastics, casting compounds; also experienced in management, production, plant setup and equipment. Address Box 799-P, RUBBER AGE.

COATING, LAMINATION, EXTRUSION and PRINTING. Rubbers, Plastics, Thermosets and Latex. Aluminum, Papers, and Textiles. Development, Production, and Marketing. At present Chemical Director AAA-1 Co. AVAILABLE FOR ONE OR TWO DAYS PER WEEK ON PERMANENT BASIS. Individual development, or general supervision or special situations. Address Box 798-P, RUBBER AGE.

PRODUCTION AND FACTORY MANAGER with 25 years experience in rubber and plastics; heavy experience in labor relations. Graduate Chemical Engineer, age 45, married. Address Box 801-P, RUBBER AGE.

MOLD DESIGNER. Mechanical rubber field. 39 years old. Twenty years experience. Ten years as Chief Inspector. 10 years in mold designing. Last four years as chief mold designer. Have knack in hand finishing molds for self-trimming purposes. Knack in making twin dies cut flash free. Adhesion know-how, have developed own cements. Am regarded as all around good rubber man. Prefer midwestern location; however will not turn down good offer elsewhere. Address Box 782-P, RUBBER AGE.

SUPERINTENDENT, chemist—desires opportunity to become production manager and eventually factory manager. Years of broad practical-technical experience in all of the phases for the production of mechanical rubber and sponge goods is my background. Address Box 797-P, RUBBER AGE.

HELP WANTED

CHEMIST — CHEMICAL ENGINEERS
"Positions with the better firms"

An active, confidential service!
Interview at your convenience!

"Many Junior Positions"
Call, write, or wire:—GLADYS HUNTING (Consultant)

DRAKE PERSONNEL, INC.
7 W. Madison St., Chicago 2, Ill., FI 6-2100

Help Wanted continued on next column→

HELP WANTED—Continued

CHEMIST: Graduate chemist preferably with rubber footwear experience for development and control work. Midwestern location. Congenial group. Compensation commensurate with experience. Address Box 766-W, RUBBER AGE.

CHEMIST, Rubber. Must have experience in the development and production of dipped, slush cast and foam rubber products. Write, giving full particulars. Address Box 800-W, RUBBER AGE.

YOUNG CHEMIST with 3 or 4 years' experience compounding neoprene and Hycar for mechanical goods. Excellent opportunity in new department with a Pennsylvania company. State education, experience and salary desired. Address Box 779-W, RUBBER AGE.

DEVELOPMENT CHEMIST: Recent graduate chemist with or without rubber experience for both pilot and plant development work. Midwestern location. Pleasant working conditions. Address Box 767-W, RUBBER AGE.

COMMISSION SALESMAN—New York, Metropolitan Area—to sell molded goods for old established, medium sized manufacturer located in New Jersey. Now supplying commercial and Government specification stocks to many nationally known concerns. A good opportunity for the right man who has a following. Address Box 793-W, RUBBER AGE.

PLANT MANAGER. Capable of taking full charge of production of a well financed mechanical rubber products plant in Connecticut. Prefer a man with experience in mass production methods and equipment; also able to procure and get such equipment in production. Intimate knowledge of compounding for rigid specifications very desirable. In addition, this man must have leadership, ambition, and patience. For such a man, our company is willing to make a substantial offer. Please send a resume, stating education and details of industrial experience which will be held in confidence until after a personal interview. Address Box 794-W, RUBBER AGE.

OPPORTUNITY

For the right man, rubber chemist with experience in latex compounding. Research and quality control with a small well-established firm in southeastern Pennsylvania. Familiarity with vinyls an added asset. Address Box 769-W, RUBBER AGE.

PROMINENT NATIONAL PACKING MANUFACTURER

has an opening in his modern research center for an experienced rubber compounder to devote full time to developing and compounding from synthetic and natural rubbers products to meet specifications for industrial applications. Finest equipment and facilities in Northern New Jersey location. Our employees have been told of this advertisement. Address Box 785-W, RUBBER AGE.

Help Wanted continued on next page→

FLEXO JOINTS

THE STANDARD FOR SAFETY

- Proved in years of efficient service, FLEXO JOINTS offer the flexibility of hose — the strength of pipe — the ideal steam connection for presses, tire molds, etc.

Four styles, for standard pipe sizes ¼" to 3".

- Write for information and prices.

FLEXO SUPPLY CO., INC., 4662 Page Blvd., St. Louis 13, Mo.

S. A. ARMSTRONG, LTD.
In Canada: 1400 O'Connor Dr., Toronto 13, Ont.

HELP WANTED—Continued

CHEMIST or ENGINEER—Well-known, medium-sized rubber company located Middle Atlantic area, needs man with 3-6 years experience in compounding and design of mechanical molded goods. Familiarity with manufacturing methods and mold construction required. Give educational background, experience, and salary requirements in first letter. Replies confidential. Address Box 805-W, RUBBER AGE.

SOLING CHEMIST

Several years' background in development and production of soling stocks. Excellent opportunity. Address Box 789-W, RUBBER AGE.

CHEMISTS

Rubber department of modern Research Laboratories has openings for Senior & Junior graduate Chemical Engineers or Chemists with Rubber experience for Compounding and Development work.

PERMANENT POSITIONS AANY COMPANY BENEFITS

Write to Mr. C. J. Briody, Jr.

GENERAL CABLE CORP. **RESEARCH LABORATORIES**
243 West 1st Street Bayonne, N. J.

BUSINESS OPPORTUNITIES

Custom Mixing, Grinding and Dispersion. Production time available on Rotary Cutters, Colloid Mills and explosion-proof Churns with attached filtering mediums. At your service—the technical know-how and completely equipped control laboratory. ADHESIVES & COATING SPECIALTIES, INC., Bldg. #22, 410 Frelinghuysen Ave., Newark 5, N. J.

FACTORY FOR SALE OR RENT

Rubber plant now producing moulded, calendered, and extruded goods. Very low overhead, 9000 feet of buildings with large adjoining land area. Location: Canada, excellent market and labor area. Address Box 780-B, RUBBER AGE.

BLACK

Master Batching
Mixing of all kinds

BESTREAD PRODUCTS CO. **STOUGHTON, MASS.**

Custom Mixing

RUBBER-PLASTICS

We do milling and compounding of all types—black or color—master batches

All mixing done under careful supervision and laboratory control.

Phone: Butler 9-0400

Pequanoc Rubber Co.

MANUFACTURERS OF RECLAIMED RUBBER
MAIN SALES OFFICE and FACTORY, BUTLER, N. J.

THE ALUMINUM FLAKE COMPANY

AKRON 14, OHIO

Manufacturers of

ALUMINUM FLAKE

A colloidal hydrated aluminum silicate. Reinforcing agent for natural, synthetic and reclaimed rubber.

NEW ENGLAND AGENTS • WAREHOUSE STOCKS:

BERLOW AND SCHLOSSER CO.
401 Industrial Trust Bldg. Providence 3, R. I.

TESTED IS TRUSTED

MODEL X Tensile Tester

One of the many *Scott Testers for "World-Standard" testing of rubber, textiles, plastics, paper, wire, plywood, up to 1 ton tensile.

SCOTT TESTERS
*Trademark

SCOTT TESTERS, INC.
90 Blackstone St. Providence, R. I.

STEEL CALENDER STOCK SHELLS

ALL STEEL, ALL WELDED CONSTRUCTION, with forged steel hubs for 1¼", 1½" and 2" square bars.

4", 5", 6", 8", 10", 12", 15", 20" and 24" diameters. Any length.

Also Special Trucks (Leaf Type) Racks, Tables and Jigs Used in manufacturing rubber and plastic products.

THE W. F. GAMMETER COMPANY
CADIZ, OHIO

Carey MAGNESIA

Oxides and Carbonates Light and Heavy—Tech. and U. S. P. Quality

Have you considered the advantages of Carey Pelletized Oxide of Magnesia packed in Polyethylene Bags—comparatively dust-free, with greater activity, longer package life?

THE PHILIP CAREY MFG. COMPANY
CINCINNATI 15, OHIO
Offices and Distributors in all Principal Cities

FINELY PULVERIZED, BRILLIANT
COLORS
FOR RUBBER-VINYLS

Western Representative: FRED L. BROOKE CO.,
3340 N. Halsted St., Chicago 13, Ill.

Ohio Representative: PALMER SUPPLIES CO.,
8905 Lake Ave., Cleveland;
800 Broadway, Cincinnati

Pacific Coast: ERWIN GERHARD,
625 Market St., San Francisco 5, Calif.

BROOKLYN COLOR WORKS INC.,
MORGAN & NORMAN AVES., BROOKLYN 22, N.Y.

GUARANTEED
REBUILT MACHINERY
MILLS, CALENDERS,
TUBERS, VULCANIZERS,
PUMPS, ACCUMULATORS,
MIXERS, PULVERIZERS,
HYDRAULIC PRESSES,
CUTTING MACHINES
Immediate Deliveries from Stock

UNITED RUBBER MACHINERY EXCHANGE

183-189 ORATION STREET
NEWARK 4, N. J.
CABLE: "URME"

softeners and plasticizers
for rubber from the pine tree
ROSIN OIL • PINE TAR
BURGUNDY PITCH
GALEX a non-oxidizing RESIN
Send for "Pine Tree Products" Booklet
NATIONAL ROSIN OIL PRODUCTS, Inc.
Americas Bldg. Rockefeller Center 1270 Ave. of the Americas, New York 20
PIONEERS OF THE INDUSTRY

RMP ANTIMONY
• ATTRACTIVE
• NON-DETERIORATING
for RED RUBBER
RARE METAL PRODUCTS CO.
ATGLEN, PA.

EQUIPMENT WANTED

WANTED: Rubber mills, calenders, mixers, Banbury mixers, extruders, grinders, cutters, hydraulic presses, injection molding machines. CONSOLIDATED PRODUCTS CO., INC., 14-17 Park Row, New York 38, N. Y.

WANTED TO PURCHASE: 2 Rubber Mills—10″ x 24″ or 12″ x 30″; and 1 hydraulic press 15″ x 20″ or 24″ x 24″. Address COSMOS SHIPPING Co., INC., 8 Bridge St., New York 4, N. Y.

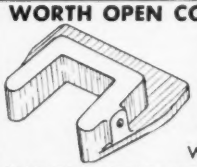
WANTED: Press 42″ x 42″ or 44″ x 44″ with 30″ or 36″ diameter ram, and 6, 8 or 10 openings. Give full description including make, age and price desired. Address Box 787-E, RUBBER AGE.

CALENDER 18″ x 48″ Three Roll with even and friction drive; Mill 10″ x 20″ or 10″ x 24″. Specify make, serial number, age and price. Describe drive. Address Box 795-E, RUBBER AGE.

EXTRUDER: 2-3″ worm, modern design, complete with variable speed drive wanted by a rubber manufacturer. Willing to pay excellent price but expect almost new machine. Also need a smaller extruder for laboratory. Specify age, manufacturer, and price. Address Box 796-E, RUBBER AGE.

WANTED: Rubber machinery including Banbury mixers, heavy duty mixers, calenders, rubber rolls and mixers, extruders, grinders and cutters, hydraulic equipment, rotary and vacuum shelf dryers, injection molding machines. Will consider now operating or shut down plant. P. O. Box 1351, Church Street Station, New York 8, N. Y.

WORTH OPEN COLLARS SAVE TIME, CUT COSTS



May be applied or removed from shaft for adjustment of jumbos or calender shells without removal of shaft from bearing. Eliminates costly time waste. Sturdy steel collar grips as firmly as old type round collar. Available in stock to fit 1¼", 1½" and 2" square shafts. Other sizes made on order. Send for sample.

WORTH PRODUCTS ARE WORTH MORE
WORTH PRODUCTS, INC. Bennington, Vermont, U.S.A.

CUSTOM RUBBER MILLING
BLACK • WHITE • COLORS
Preparation of master batches and complete compounds of every type to meet your specifications and requirements.
ABC RUBBER CO.
1451 South Sangamon St. Chicago 8, Illinois
Telephone: TAylor 9-0644

NATIONAL SHERARDIZING & MACHINE CO.
AIR BAG BUFFING MACHINERY
STOCK SHELLS HOSE POLES
MANDRELS
858 Windsor St., Hartford, Conn.
Representatives: Akron New York

GRANULATED CORK
PROCESSED TO SPECIFICATION
MARYLAND CORK COMPANY, INC.
1528 Munsey Bldg. Baltimore 2, Md.

Want your own copy of Rubber Age?
see page 313

MIXING
To Your Specification
K. B. C. INDUSTRIES, INC. NEW HAVEN, CONN.
881 State St. Tel: State 7-5662
Otto J. Lang, General Manager

EQUIPMENT FOR SALE

RUBBER & PLASTIC MACHINERY

New and Used to your requirements

Several—22 x 20 x 60" Journal Mills H. D. Motor Drive 3A Banbury Rebuilt—Presses all sizes—Mills 36"—40"—45"—60" M & D—Calenders—Extruders—Extrusion Cutters—36" Ferriot—57" Ferriot Cutters—Speed Reducers—32" Farrel Refiner Motor & Drive. All items pertaining to the industry. New and used vulcanizers.

SUAM RUBBER MACHINERY CO.
477 Washington St. P.O. Box 529 Akron 9, Ohio
Telephone: POrtage 2-8437

COMPLETE MOLDING SYSTEM, still in operation, consisting of 5 press, water hydraulic, and central pump unit. (2) Baldwin—20" x 20", 14" stroke, 12" ram, 100 tons; (1) T. Shriver—18" x 18", 9" stroke, 12" ram, 100 tons; (1) Watson Stillman—16" x 18½", 9" stroke, 18½" ram, 50 tons; (1) Baldwin 14½" x 15½", 14" stroke, 8" ram, 50 tons; all platens electrically heated, complete with controls for automatic or manual operation. (1) Worthington Pump and Accumulator, 20 H.P. Motor, 25,000 P.S.I., 100 g.p.m.; (1) Southwark Hylo power unit. System complete with piping, gauges, valves, spare parts, etc. May be seen in operation. Unusual opportunity for substantial savings on this unit. Location: Philadelphia. Address Box 788-S, RUBBER AGE.

HYDRAULIC PRESSES

1—Birdsboro, 1800 Tons, down-acting ram 30" dia. x 24" stroke, 48" DLO, 42" x 42" bed area.

1—Clearing, 500 Tons, completely self-contained with controls for manual or automatic operation, suitable for compression and injection molding.

1—Farrel, 390 Tons, 48" x 48" steam platens, 2 openings, 4 rams—10" dia. x 24" stroke, approx. 15" per opening.

1—Watson-Stillman, 100 Tons, 11¾" x 12" platens, 22½" DLO, ram—8" dia. x 15" stroke.

1—Watson-Stillman, 100 Tons, down-acting, 22" x 20" bed area, 24" DLO, ram—11½" x 9¼" x 6" stroke, self-contained; complete with 15 HP MD Vickers Pump. Unit is practically new.

1—HPM, 100 Tons, 18" x 18" Platen Area, ram 8" dia. x 18" stroke, 30" DLO, Steel Cylinder—4000 PSI.

2—Burroughs, 75 Tons, down-acting, 17½" x 17" electric-heated platens, 13½" DLO, ram—8" dia. x 10" stroke, complete with 7½ HP MD Oilgear Pump.

1—Watson-Stillman, 50 Tons, down-acting, platen area 25" x 25½", 25" DLO, ram—8" dia. x 14", complete with 7½ HP MD Pump.

1—New Laboratory Press, 12 Tons, Hand Operated, fitted with 8" x 8" electrically heated platens.

3—Denison, 4 Tons, Model FH4-CO1, down-acting ram—3½" x 12" stroke, 18" DLO, bed 22" x 14", 8⅛" throat, complete with 3 HP MD Pump, time delay control, all valves, piping, gauges, controls; 1 machine slightly used, 2 units still in original crates.

1—Standard Machinery Co. #14 Toggle Press, 150 Tons, platen area 34" x 28", 6" DLO, 3½" stroke, arranged for Motor drive, practically new.

Also: Plastics & Rubber Extruders, Mills, Mixers, Grinders, Injection Molding Machines, Pumps, Valves, Platens, etc.

JOHNSON MACHINERY COMPANY
683 Frelinghuysen Avenue Newark 5, New Jersey
What have you for sale? **What are you looking for?**
BIgelow 8-2500

BUYING-SELLING
OFFERING NEW MACHINERY

All kinds of *used* machinery for the Rubber and Allied Industries.

Hydraulic Presses, Laboratory Mills and Presses, Sponge Rubber Vulcanizing Presses, Drilled Steel Steam Platens, Rubber Bale Cutters guillotine type, Vulcanizers with quick opening doors, etc.

HIGH EFFICIENCY IN QUALITY, PRICE AND DELIVERY TIME

ERIC BONWITT 431 S. Dearborn Street Chicago 5, Ill.

RUBBER **PLASTICS** **SYNTHETICS**

PRECISION WORKMANSHIP

CALENDERING & MIXING

RUBBER & PLASTICS: Calendering, mixing, grinding & pulverizing

AS YOU WANT IT—•—QUICK SERVICE

THE SANISEAL MFG. CO. P. O. BOX 1315
NEW HAVEN, CONN. TEL. SPRUCE 7-3437

SINCE 1880 **RUBBER & PLASTIC**

Rand REG. U. S. PAT. OFF.

"They Last Longer" REG. U. S. PAT. OFF.

DRESS SHIELDS
DRESS SHIELD LININGS
BABY PANTS
BABY BIBS & APRONS
SANITARY WEAR
RUBBERIZED SHEETING
RUBBER APRONS
STOCKINET SHEETS
RUBBER SHEETS
RAINCAPES & COATS
RUBBER SPECIALTIES
DOLL PANTS, CAPES, ETC.

RUBBER DAM & BANDAGES — SHEET GUM

RAND RUBBER CO. BROOKLYN, N. Y. U. S. A. MFRS.

FOR SALE

CYLINDER AUTOCLAVES, MOLD CARS, OIL FIRED DRIERS, ACCUMULATORS, MIXERS, DUST COLLECTORS, TRANSFER CARS, BATCH BUCKETS, PAN BRUSH MACHINE, LEVELATOR JACKS

and many other pieces of important machinery and equipment necessary in the manufacture and handling of

CONCRETE, LIME, GLASS, CERAMIC, CHEMICAL, ASBESTOS & RUBBER PRODUCTS

THE MAJORITY OF THIS UNUSUAL EQUIPMENT WAS PURCHASED AND INSTALLED NEW IN 1948 BY THE OWENS-ILLINOIS GLASS CO., KAYLO DIV., AND HAS HAD VERY LITTLE SERVICE. IT COMPRISES:

5 CYLINDER AUTOCLAVES, 84" clear, I. D. x 72' working length, ASME code of 150# working pressure; ¾" plate, 32'32" doors, flange connections, **600 MOLD CARS**, with heavy roller bearings for steam processing, equipped to hold 33, 42 & 51 36" x 18" mold pans. Cars 5' high, 4½' wide, 29½" inside gauge. **OIL FIRED DRIERS**, high capacity for concrete masonry units, complete with burners, blowers, ducts and all instrumentation. **ACCUMULATORS**, (3) tunnel type, approx. 70' long, 6' wide, 6' high, 14 gauge galvanized steel. **MIXERS**, horizontal, all steel, 4' wide x 50" deep x 15' long, 15 H. P. motor; vertical 7' dia. x 8' high, 7/16" thick, reducer and 7½" H. P. motor. **DUST COLLECTOR**, Sly Type 360, inside length 18' divided in 2 sections. **4 POWER DRIVEN TRANSFER CARS**, 2 single, 2 double, for use with Levelator jacks. **10 LEVELATOR JACKS**, 4'4" lift, 5' x 4' x 2' platform & power units. **53 CONE & SQUARE BATCH BUCKETS** with monorail, 1 & 2 yd. cap. **PAN BRUSH MACHINE** for cleaning 36" x 18" mold pans, with elaborate attachments. **RIBBON MIXER**, 10' long, 6' wide, 7' deep. **ALSO A TREMENDOUS QUANTITY OF ALLIED EQUIPMENT**, such as Car Puller System (Intercontinental, complete); 50,000 Steel Mold Pans; Batch Weigh Out Scales & Control; Monorail Scale; Electric Motors from 5 to 40 H. P.; Speed Reducers (Link Belt & Reeves, all sizes); Brown Instrument Temperature Recorders & Time Pattern Controller; Centrifugal Pumps; Link Belt Roller Chain; 1,000 gal. Condensate Tank; Water Meters; Air Compressors, M. D.; Band Saw; Sturtevant Fans; Hydraulic Cylinders; Lime Storage Bins; Water Pumps; Arbor Saw; Turbo Blowers; Soil Pipe and many other items.

ALL OF THE ABOVE IS OFFERED SUBJECT TO PRIOR SALE AND MAY BE INSPECTED ON THE PREMISES OF THE OWENS-ILLINOIS GLASS CO., KAYLO DIV., SAYREVILLE, N. J. INSPECTION BY APPOINTMENT ONLY. FOR FURTHER INFORMATION, PRICES, AND INSPECTION APPOINTMENT, WRITE, WIRE OR PHONE.

SAMUEL FELDMAN

570 Seventh Ave. LAckawanna 4-4845 New York 18, N. Y.

HOWE MACHINERY CO., INC.
30 Gregory Avenue Passaic N. J.
DESIGNERS & BUILDERS
OF V BELT MANUFACTURING EQUIPMENT
Cord Layering, expanding mandrels, automatic cutting skiving, flipping and roll drive wrapping machines
ENGINEERING FACILITIES FOR SPECIAL EQUIPMENT
Call or Write

Directory of CONSULTANTS

R. R. OLIN LABORATORIES
Rubber Technologist—Development and research in Natural Rubber, Synthetic Rubber and Plastics. Also chemicals and compounding materials used with these materials.
P.O. Box 372 RA, Akron 9, Ohio

SOUTH FLORIDA TEST SERVICE
(Established 1931)
Corrosion, weathering and sunlight tests. Four locations in Southern Florida for inland, salt atmospheric, tidewater and total immersion exposure tests.
4201 N. W. 7th St., Miami, Florida

PHILIP TUCKER GIDLEY
Consulting Technologist—Research, product development, formulas, factory plans, engineering, chemical and physical testing.
Fairhaven, Massachusetts

HALE AND KULLGREN, INC.
Specialists in Process and Plants for Rubber and Plastics
A Complete Engineering Service
including: Economic Surveys; Process Design; Installation; Contracting and Operation.
613 E. Tallmadge Ave., Akron 10, Ohio

THE JAMES F. MUMPER CO.
ENGINEERS
Plant design, buildings, services. Process & equipment development. Modernization—cost reduction. Surveys & Reports.
313 Everett Bldg. **Akron 8, Ohio**
Phone: JEfferson 5939 JEfferson 4543

RUBBER MACHINERY

MILLS

24 x 84"
22 x 72"
22 x 60"
24 x 48" (heavy duty)
18 x 45" (several)
18 x 30"
16 x 40" (several)
16 x 30"
16 x 24"
6 x 12" (used lab)
6 x 12" (new lab)
8 x 18"
10 x 24"

HYDRAULIC PRESSES

36 x 36", 30" ram
30 x 54", 30" ram
24 x 24", 12" ram
24 x 24", 14" ram
30 x 30", 16" ram
48 x 48", 4-14" rams, 8 openings
12 x 12"

We also furnish new ARMACO presses of the following sizes:

12 x 12"	36 x 36"
18 x 18"	42 x 42"
24 x 24"	48 x 48"
32 x 32"	

Also larger sizes, all presses having large diameter rams.

CALENDERS

24 x 66" 3-roll
22 x 60" 3-roll
18 x 54" 3-roll
16 x 40" 3-roll
12 x 30" 4-roll
10 x 20" 3-roll
6 x 12" New lab

BANBURY MIXERS

Nos. 1, 1A, 3, 3A, 9 & 11

EXTRUDERS

1", 2", 3¼", 4½", 6", 8", 12" all with motors and drives.

VULCANIZERS

All sizes new and used, with quick opening door.

BUYS OF THE MONTH ★

MISCELLANEOUS

72" Turner Splittor
Refiners, Crackers, Choppers, and Grinders
Black Rock Washer Cutters—Gears, Gear Reducers
36" Ferriot Stock Cutter, almost new
4M Black Rock Stock Cutters
Hydraulic Pumps—high and low pressure Units (all types available)

FOR THE BEST DEAL IN NEW AND USED RUBBER WORKING MACHINERY, CALL US OR STOP IN AT OUR LOCATION CLOSE TO DOWNTOWN AKRON.

ARMACO

AKRON RUBBER MACHINERY CO., INC.
200 South Forge St. • P.O. Box 88 • Akron 9, Ohio • PHONE HEmlock 9141

EQUIPMENT FOR SALE—Continued

FOR SALE: 1 ½" NRM rubber extruder, 1953 model, used less than 40 hours. Just like a new machine. Address Box 784-S, RUBBER AGE.

BLACK ROCK, Model 4MB, Guillotine Cutter. Used experimentally one week, only.—$890.00 f.o.b. Toledo. ROBERTS TOLEDO RUBBER CO., Toledo 6, Ohio.

FOR SALE: 1—10" x 20" rubber mill, M.D. 1—6' x 12' horizontal ASME vulcanizer. 2—42" x 42" multi opening hydraulic presses. CHEMICAL & PROCESS MACHINERY CORP., 146 Grand Street, New York 13, New York.

BANBURY BODIES REBUILT. Complete service, long experience, precision workmanship. Spare parts for all sizes and we can fabricate any part required. Expert inspection of your installation in your plant on request. Write for estimates. INTERSTATE WELDING SERVICE. Offices, Metropolitan Bldg., Akron 8, Ohio.

Hydraulic presses and pumps rebuilt, repaired. New presses from laboratory up to 1000 tons. Pumping units up to 10,000 p.s.i., all capacities. CLIFTON HYDRAULIC PRESS CO., 290 Alwood Rd., Clifton, New Jersey.

BAKER PERKINS #14—JEM Universal Mixer, double shaft sigma blades, jacketed shell, vacuum cover, hydraulic tilt; Stokes Rotary Pellet Pressure—RD-3 and RDS-3; Kux Model 25; Ball & Jewell Stainless Steel Rotary Cutter #1½; Mikro Pulverizers #1-SH, #1-SI, #2-TH, #2-SI. Large stock steel and stainless steel tanks and kettles. PERRY EQUIPMENT CORP., 1409 N. 6th Street, Philadelphia 22, Penna.

FOR SALE—One Allen-Williams 8" Strainer (National-Erie) with perforated straining barrel 12½" lg. Has liner to use in place of screens and extra head for die holder for extruding. Complete with 30 H.P. G.E. Motor, 220 V., 3 ph., 60 cycle. Operating. Excellent Condition. $3300.00. NICHOLS ENGINEERING, INC., 479 Ferry Blvd., Stratford, Conn.

SAVE WITH GUARANTEED REBUILT EQUIPMENT: 2 New R. D. Wood 500-ton EMBOSSING PRESSES, 54" x 26" platen. HYDRAULIC PRESSES: 42"x37", 20" ram, 475 tons; 2—7 opening 27"x27", 18" ram, 565 tons; 24"x24", 12" ram, 170 tons; 24"x20", 10" ram, 118 tons; 20"x20", 10" ram, 118 tons; 20"x20", 10" ram, 200 tons; 30"x20", 8" ram, 75 tons; 24"x20", 8" ram, 75 tons; 14"x14", 8" rams, 75 tons; 15"x15", 8" ram, 75 tons; 2—19"x24", 10" rams, 78 tons; 12"x12", 6½" ram, 50 tons; 14"x14", 8" ram, 50 tons; 8"x9½", 4½" rams, 20 tons; 16"x16", 3½" rams, 12 tons; PREFORM PRESS: Colton 5½ T, Reeves Drive and Motor; LABORATORY PRESSES: Carver & Watson Stillman Units; NEW UNIVERSAL DUAL PUMPING UNITS: 3—15 HP; NEW LABORATORY MILLS and CALENDERS; EXTRUDER; Modern Plastic 1½"; ACCUMULATOR: HPM 6" ram, 2500#, also Mixers, Vulcanizers, Injection Molding Machines, etc. UNIVERSAL HYDRAULIC MACHINERY CO., INC., 285 Hudson Street, New York 13, N. Y.

USED MACHINERY

FOR SALE

1—Ambaco Model 3A Continuous Baler
1—Thropp 2-roll Rubber Mill 10"x24".
2—Thropp 2-roll Rubber Mills, 18"x50".
1—Thropp 2-roll Rubber Mill 14" x 30".
1—Adamson Vulcanizer & 2' x 12' with quick opening door.
1—Ball & Jewell Stainless Steel #0 Rotary Cutter with Motor.
1—Paul O. Abbe #2 Master Rotary Cutter with Ball Bearings.
1—Welding Engr. Stainless Steel #2 Extruder.
1—Sprout Waldron Attrition Mill, Type 36 with 2 — 75 HP Motors.
1—Baker Perkins Stainless Steel dbl. arm jktd. mixer, sigma blade, 9 gal.

WE ARE INTERESTED IN PURCHASING ALL TYPES OF RUBBER machinery consisting of mills, Banbury mixers, extruders, calenders, vulcanizers etc. and also complete plants.

R. GELB & SONS Inc.
STATE HIGHWAY No. 29, UNION, N.J.
UNIONVILLE-2-4900

GOOD USED MACHINERY "Our 36th Year"

1—Farrel-Birmingham 6" x 13" self-contained 3-roll Calender, m.d.
1—6" x 12" Laboratory Mill, m.d.
1—Reed Prentice 4 oz. Model 10A Injection Molding Machine.
3—Southwark 48" x 48" hyd., 7-opening, with 4—12" dia. rams.
1—Farrel 16" x 30" mill, m.p.
1—18" x 54" 3 roll Calender.
3—#28 Devine Vac. Shelf Dryers, 19—59" x 78" shelves complete.
2—Ball & Jewell #2 Rotary Cutters, #1, with HP 3 motor.
6—18" x 18" hyd. Presses.
1—Day Ro-Ball #71 Stainless Sister.
1—Kux Model 50 Preform Machine.

Also other sizes Hydraulic Presses, Tubers, Banbury Mixers, Mills, Vulcanizers, Calenders, Pellet Presses, Cutters.

WIRE—PHONE—WRITE *us your inquiries*

CONSOLIDATED PRODUCTS COMPANY, INC.
Observer Highway and Bloomfield St., Hoboken, N. J.
Hoboken 3-4425 — N. Y. Tel: BArclay 7-0600
WANTED: Your Surplus Rubber Machinery

WILLIAM TAPPER

USED RUBBER WORKING MACHINERY

Clear Out Surplus or Obsolete Equipment *NOW!*
Sell for Cash to *Tapper*
Send For Our Monthly Machinery Bulletin

30 South Broadway, Yonkers, N. Y.

PHONE: YONKERS 3-7455
CABLE: WILTAPPER YONKERS, N. Y.

NEW and REBUILT MACHINERY

SINCE 1891

L. ALBERT & SON

Trenton, N. J. — Akron, O. — Chicago, Ill. — Los Angeles, Calif.

INDEX TO ADVERTISERS

A

ABC Rubber Co. 316
Accurate Steel Rule Die Manufacturers 175
Ace Machine and Mould Company, Inc. ..... —
Adamson United Co. ..... —
Aetna-Standard Engineering Co. ..... —
Akron Equipment Co. ..... —
Akron Rubber Machinery Co. 318
Albert, L., & Son 318
Alco Oil & Chemical Corp. 295
Aluminum Flake Co. 315
American Cyanamid Co.
Calco Chemical Div., Intermediate & Rubber Chemicals Dept. ..... Insert following 202
Pigment Division ..... —
American Enka Corp. 178
American Resinous Chemicals Corp. 286
American Zinc Sales Company 219
B. C. Ames Co. 298
Argus Chemical Laboratory ..... —
Atlas Electric Devices Co. 212

B

Baird Rubber and Trading Co. ..... —
Baker Castor Oil Company ..... —
Baldwin-Lima-Hamilton Corp. 208, 209
Barrett Div., Allied Chemical & Dye Corp. ..... —
Bestread Products Co. 315
Binney & Smith Co. ..... Insert Following 262
Black Rock Mfg. Co. ..... —
Bolling, Stewart, & Company, Inc. ..... —
Bonwitt, Eric 317
Bridgwater Machine Co., The 201
Brockton Cutting & Die Machine Co. ..... —
Brooklyn Color Works, Inc. 316
Brown Company 200
Buss Machine Works 283

C

Cabot, Godfrey L., Inc. 211, 227
Cambridge Instrument Co. Inc. ..... —
Carey, Philip, Mfg. Co. 315
Carter Bell Mfg. Co. 290
Chemical Publishing Co. ..... —
CLASSIFIED ADVERTISING 314, 315, 316, 317, 318
Cleveland Liner & Mfg. Co. 176
Colledge, E. W., General Sales Agent, Inc. 301
Columbia-Southern Chemical Corp. 191
Columbian Carbon Co. ..... Insert following 262
Concord Mica Corp. ..... —
Consolidated Products Co. 318
CONSULTANTS SECTION 317
Continental Carbon Co. ..... Back Cover
Coulter, James, Machine Co. 293
Cumberland Engineering Co. Inc. 299

D

D. P. R. Inc. 296
Dayton Rubber Co. 311
Diamond Alkali Company
Pure Calcium Prod. Div. ..... —
Diamond Metal Products Co. 303
Dow Corning Corp. 172
E. F. Drew & Co., Inc. ..... —
du Pont de Nemours, E. I. & Co., Inc.
Rubber Chemicals Div. ..... Second Cover
Grasselli Chemicals Dept. ..... —

E

Elm City Rubber Co ..... —
Emerson Apparatus Co. 311
Emery Industries, Inc. 215
English Mica Co. ..... —
Erie Engine & Mfg. Co. 288
Erie Foundry Company ..... —

F

Falls Engineering & Machine Co. ..... —
Farrel-Birmingham Co., Inc. 205
Ferry Machine Co., Inc. 302
Fidelity Machine Co., Inc. 187
Flaxo Supply Co. 314
Foremost Machine Builders, Inc. ..... —

G

Gammeter, W. F., Co. 315
Gelb, R. & Sons, Inc. 318
General Atlas Division of Cabot Carbon Co. 225
General Electric Co. 196
General Latex & Chemical Corp. 309
General Magnesite & Magnesia Company 298
General Mills
Chemical Division 279
Genseke Brothers 207
Gidley, Philip Tucker 317
Giffels & Vallet, Inc. 192
Glidden Co.,
Chemicals-Pigments-Metals Div. 189
Goodrich, B. F., Chemical Co. 169
Goodyear Tire & Rubber Co.
Chemical Div. 171, 173, 177
Gummi und Asbest ..... —

H

Hadley Bros.-Uhl Co. ..... —
Hale & Kullgren, Inc. 317
Hall, C. P., Co. 190
Hardesty Chemical Co., Inc. 224
Harris Co., Tedd 291
Harshaw Chemical Co. 223
Harwick Standard Chemical Co. 285
Hercules Powder Company, Inc. ..... —
Heveatex Corporation 289
Hoggson & Pettis Mfg. Co. ..... —
Holliston Mills, Inc. 307
Holmes, Stanley H., Co. 287
Howe Machinery Co., Inc. 317
Huber, J. M., Corp. 228
Hunt, Rodney, Machine Co. ..... —

I

Independent Die & Supply Co. 311
Indoil Chemical Co. 193
Industrial Ovens, Inc. 184
Industrial Research Laboratories 309
Interstate Welding Service 198

J

Johnson Steel & Wire Co., Inc. 214

K

K. B. C. Industries, Inc. 316
Kautschuk und Gummi ..... —
Koppers Co., Inc. 295

L

La Goma ..... —
Lambert, E. P., Co. 291

M

Marbon Corp. 180
Marine Magnesium Products, Division of Merck & Co., Inc. ..... —
Maryland Cork Company, Inc. 316
Monsanto Chemical Co. ..... —
Mt. Vernon-Woodberry Mills, Inc. 181
Muehlstein, H., & Co., Inc. 281
Mumper, James F., Co. 317

N

National Chemical & Plastics Co. 300
National Rosin Oil Products, Inc. 316
National Rubber Machinery Co. ..... —
National Sherardizing & Machine Co. 316
National-Standard Co. ..... —
Naugatuck Chemical Division
U. S. Rubber Co. 199, 221, 230
Neville Chemical Co. 197
New Jersey Zinc Co. 174

O

Oakes Corporation, E. T. ..... —
Olin, R. R., Laboratories 317
Oronite Chemical Co. 222
Osborn Mfg. Co. 206

P

Pan American-Chemicals Division 289
Pennsylvania Industrial Chemical Corp. ..... —
Pequanoc Rubber Co. 315
Phillips Chemical Co. 170
Pike, S. J., & Co., Inc. 305
Pittsburgh Coke & Chemical Co. 195
Preventive Maintenance Co. 294
Progressive Service Co. 299

R

Rand Rubber Co., Inc. 317
Randall, Frank E., Co. 300
Rare Metal Products Co. 316
Revue Generale du Caoutchouc ..... —
Richardson, Sid, Carbon Co. 320
Rotex Rubber Company, Inc. ..... —
Royle, John, & Sons 301
Rubba Inc. 303
Rubber Corp. of America 212
Rubber Producing Facilities Disposal Commission 210

S

St. Joseph Lead Co. 226
Saniseal Mfg. Co. 317
Schulman, A., Inc. ..... Inside Back Cover
Scott Testers, Inc. 315
Sharples Chemicals Inc. ..... Insert following 212
Shaw, Francis & Co., Ltd. 202
Shell Oil Company 217
Siempelkamp, G., & Co. ..... —
Simplex Cloth Cutting Machine Co., Inc. ..... —
Sindar Corporation 307
Sivon Manufacturing Co. 297
Skelly Oil Co., Solvents Div. ..... —
Snell, Foster D., Inc. 301
South Florida Test Service 317
Southeastern Clay Co. ..... —
Southern Clays, Inc. 194
Spadone Machine Co. ..... —
Stamford Rubber Supply Co. 297
Standard Machinery Co. ..... —
Stanley Electric Tool Div. 296
Stauffer Chemical Co. ..... —
Stoner's Ink Co. 319
Suam Rubber Machinery Co. 317
Sun Oil Co. 218

T

Tanney-Costello Inc. ..... —
Tapper, Wm. 318
Taylor Instrument Companies ..... —
Taylor-Stiles and Co. ..... —
Thiokol Chemical Corporation 182
Thomaston Mills 297
Titanium Pigment Corp. ..... —
Tracerlab, Inc. 303
Trade News Service ..... —
Tumpeer Chemical Co. 307
Turner Halsey Co. 181

U

United Carbon Co. ..... Insert Following 184
United Clay Mines Corp. 319
United Engineering & Foundry Co. 183
United Rubber Machinery Exchange 316
U. S. Rubber Reclaiming Co. 220
Utility Mfg. Co. 294

V

Vanderbilt, R. T., Co. ..... Front Cover
Velsicol Corp. ..... —

W

Wellington Sears Co. 216
Western Supplies Co. 188
White, J. J. Products Co., Inc. 309
Whittaker, Clark & Daniels, Inc. ..... —
Williams, C. K., & Co. ..... —
Witco Chemical Co. 179
Woloch, George, Co. 292
Wood, R. D., Co. ..... —
Worth Products Inc. 316

MOLD LUBRICANT SPECIALTIES

#980 Silicone-Base
(ph 10.3)

#935 Silicone-Base. Excellent for high styrene resin and other Rubber Compounds. Lasting high gloss finish.

#735 Water miscible. Fast release, good finish, particularly effective on flat goods in eliminating poach marks.

#880 (ph 10.6)

STONER'S INK COMPANY
QUARRYVILLE, PENNA.

"WINDSOR CLAY"

The Ideal
HARD RUBBER CLAY

A Sample and Technical Data are yours for the asking.

UNITED CLAY MINES
CORPORATION
TRENTON NEW JERSEY

HUGHES PRINTING CO.
EAST STROUDSBURG, PA.

...new experience

Running low on supply of channel black might be a new experience, but it can be avoided. As a regular customer of the Sid Richardson Carbon Co. you can protect yourself against future shortages of channel black caused by the ever-increasing diversion of gas supplies from channel black plants to pipe lines.

Our own extensive supplies of natural gas and other resources, plus the world's largest channel black plant, are your assurance for a *continuing supply* of top-quality, uniform, economical-to-use ***TEXAS "E"*** and ***TEXAS "M"*** channel blacks.

TEXAS
CHANNEL BLACKS

Sid Richardson
CARBON CO.

FORT WORTH, TEXAS

GENERAL SALES OFFICES
EVANS SAVINGS AND LOAN BUILDING
AKRON 8, OHIO

A. Schulman Inc.

SCRAP RUBBER

CRUDE RUBBER

HARD RUBBER DUST

PLASTICS

OUR 25TH YEAR

- NEW YORK CITY
  53 East 34th St.
  MUrray Hill 5-8380
- AKRON, OHIO
  790 E. Tallmadge
  HEmlock 4124
- BOSTON, MASS.
  738 Statler Bldg.
  Liberty 2-2717
- E. ST. LOUIS, ILL.
  14th & Converse
  BRidge 5326
- A. SCHULMAN INC., LTD.
  Ibex House, Minories
  LONDON E. C. 3, ENGLAND
- A. SCHULMAN (USA) GmbH
  Bolco Building • Hinuberstrasse 18
  HANOVER, GERMANY

WITCO-CONTINENTAL'S

new facilities at Sunray—where CONTINEX® SRF, HMF and FEF Blacks are now in expanding production to meet your growing demands.

#3 unit at Sunray, Texas, showing bag filter, cyclone collector and pelletizing drums.

WITCO CHEMICAL COMPANY

CONTINENTAL CARBON COMPANY

260 Madison Avenue • New York 16, N. Y.

Akron • Amarillo • Los Angeles • Boston • Chicago • Houston
Cleveland • San Francisco • London and Manchester, England

37th Year DECEMBER, 1953

RUBBER AGE

We Supply

SETSIT

activated dithiocarbamate

LATEX ACCELERATORS

For Every Type of Production

SETSIT-5 • BUTYL SETSIT • SETSIT-9

Consult Vanderbilt Technical Service for Recommendations
Based on Individual Plant and Product Requirements

R. T. VANDERBILT CO. INC.
230 Park Avenue, New York 17, N. Y.